

3.0 AFFECTED ENVIRONMENT

This chapter describes the resources that will be affected by the alignment alternatives if they were implemented. This chapter establishes the baseline environmental situation against which decision makers and the public can compare the effects of all alignment alternatives and it serves as the baseline for the impact analysis which appears in Chapter 4. Aerial photos of the study area are provided on Figures 2-1 through 2-3. To help the reader visualize the proposed project, the approximate right-of-way (ROW) is delineated on the photos.

Within the Otay Mesa area, a focused Study Corridor was defined. The technical studies that were prepared for this project focused on this corridor; they are listed at the beginning of Chapter 4. The defined Study Corridor extended between Interstate 805 (I-805) and the Otay Mesa Port of Entry (POE), and is approximately 10 kilometers (6.2 miles) long and ranges from approximately 150 to 915 meters (500 to 3000 feet) in width. Most of the direct impacts relative to project implementation and construction are expected to occur within this corridor. The information provided on existing conditions and issues within the Study Corridor is therefore more detailed than that provided for the study area (a larger geographical area).

3.1 GEOGRAPHIC SETTING AND TOPOGRAPHY

The project site is located in the southern-most portion of San Diego County, and follows the existing route of Otay Mesa Road (OMR) within the City of San Diego. The Pacific Ocean is approximately 11 kilometers (seven miles) to the west, the north-south trending San Ysidro Mountains are to the east, the Otay River Valley is to the north, and the international border with Mexico is to the south. The proposed project traverses Otay Mesa from I-805 to the POE. Otay Mesa has gently rolling terrain, with elevations varying from approximately 135 meters to 180 meters (450 to 550 feet) above mean sea level. The lowest elevation is located at the western extent of the project, with little variation along the mesa.

Natural landmarks include two major canyons: Dennerly Canyon, which drains northerly from OMR toward the Otay River; and several branches of Spring Canyon, which drain southerly from OMR. Regional access to the project site is provided by the existing western portion of Route 905, which extends from I-5 to its current terminus at I-805. This current terminus marks the western beginning point of the project's West Segment.

3.2 GEOLOGY

The study area is situated in the western portion of the Peninsular Ranges geomorphic province of southern California. In general, the Peninsular Ranges are underlain by Jurassic metavolcanic and metasedimentary rocks and by Cretaceous igneous rocks of the southern California batholith. The westernmost portion of the province in San Diego County consists generally of Upper Cretaceous, Tertiary, and Quaternary sedimentary rocks. Much of the mesa has been mapped as being underlain by terrace deposits, the Lindavista Formation, and the San Diego Formation. The San Diego Formation separates the Lindavista Formation from the underlying Otay Formation, which is also exposed in some areas. The project area is underlain by topsoil/colluvium, alluvium, fill, terrace deposits, and landslide/soil creep deposits. Topsoil and colluvium (mainly silty and clayey sand) cover much of the undeveloped area. Areas dominated by clays in the Otay Formation are expansive and prone to erosion and landsliding, especially on steeper slopes such as in Spring Canyon.

Several areas in the project area are underlain by undocumented fill, engineered fill from various developments, and miscellaneous debris/unauthorized dumping sites. Undocumented soil fills occur as drainage infill, spoil piles, and berms, and were likely placed with little or no compactive effort. These soils, as well as the debris sites, are not considered suitable foundation materials in their present condition. A filled drainage known as the “Tripp Landfill” (near Cactus Road) is also underlain by hazardous materials.

The project site is considered to be in a seismically active area, as is most of southern California. Although no active faults are known to transect the Study Corridor, several splays of the potentially active La Nacion fault have been mapped in the area. The Rose Canyon Fault is the nearest known active fault, 10 kilometers (six miles) away. These faults, as well as other faults in the region, have the potential for generating strong ground motions in the project area. The maximum credible earthquake for project area is a magnitude 7.0 on the Richter Scale for the fault trace nearest the project. The available information suggests that a seismic event probability of less than 0.01/year.

3.3 PALEONTOLOGY

Paleontological resources represent a limited, nonrenewable, and sensitive scientific and educational resource. High sensitivity is assigned to geologic deposits (formations) known to contain rare, well-preserved fossil materials important for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history of animal and plant groups. Generally speaking, high sensitivity formations produce vertebrate fossil remains or are considered to have the potential to produce such remains. High sensitivity formations recognized in the Study Corridor include the San Diego Formation and the Otay Formation. Portions of the Study Corridor are also underlain by geologic deposits that contain moderate-sensitivity paleontological resources. These resources usually include poorly preserved fossils of marine invertebrates and rare fossil remains of terrestrial mammals in the Pleistocene-aged (1-2 million years old) Lindavista Formation.

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading operations, excavate into geological deposits (formations) which contain buried fossils. These direct impacts are in the form of physical destruction of fossil remains. Since fossils are the remains of prehistoric animal and plant life, they are nonrenewable resources.

3.4 HYDROLOGY/DRAINAGE

The majority of the project area is composed of a series of smooth terraces known as mesas. These mesas are relatively flat, however, their general slope along the project corridor is from north to south. Drainage generated from area basins and sub-basins, therefore flows predominantly from north to south, crossing OMR in numerous existing culverts. Runoff is conveyed in natural swales and channels with some overland flow, street flow and storm drain flow. A major factor affecting runoff is the potential for soil infiltration. The soils in the project area have a high clay content with low infiltration, which is conducive to high runoff potential. Drainage south of OMR is carried mostly within steep canyons and gullies, particularly west of Britannia Road. This area drains towards the west. The annual rainfall is approximately 280 millimeters (11 inches).

3.5 WATER QUALITY AND GROUNDWATER

The Study Corridor is located almost entirely within the Tijuana Hydrologic Unit, one of eleven designated units used for water quality planning within the San Diego Basin. Drainage is through the Tijuana River and its associated tributaries, including a number of canyons (Spring Canyon being one of them) and unnamed ephemeral creeks trending west and south. Surface water within the Study Corridor consists predominantly of intermittent runoff associated with storm events and (to a lesser degree) irrigation. The project will not cross any permanently flowing creeks (creeks with year-round water flow) but it will cross the Otay Mesa Floodplain.

Depending on location and volume, local runoff may occur as both point and non-point flows. Point flows, as defined by the Regional Water Quality Control Board, consist of runoff within “discernible, confined, and discrete conveyances.” Within the Study Corridor, point flows occur as natural drainage courses, storm drains, irrigation channels and discharge facilities (e.g. pipes and channels) associated with agricultural and industrial uses. Non-point flows consist primarily of overland runoff associated with storms and agricultural or landscape irrigation. Runoff derived from urban, agricultural and (to a lesser extent) undeveloped sources may encompass both point and non-point flows and associated contaminants.

Principal pollutants affecting existing surface water quality within the Study Corridor include eroded sediment in rural and open space areas (both disturbed and undisturbed); sediment, organic material, salts, fertilizers, and pesticides in agricultural areas; and industrial discharge and storm water drainage in developed (urban) areas. A number of documented hazardous material sites are located within the Study Corridor. These sites may contribute contaminants to local surface and groundwater through mechanisms such as direct discharge, exposure to surface runoff, or infiltration. Given the intermittent nature of surface waters and the presence of major upstream urban development in the corridor, existing water quality is generally poor. Water quality along the 11.3 kilometer (seven mile) stretch of the Tijuana River is identified as impaired. The Tijuana River is classified as a 303(d) listed water body that is impaired for bacterial indicators, dissolved oxygen (low), eutrophic pesticides, solids, synthetic organics, trace elements, and trash.

The existing beneficial uses for the Tijuana River are non-contact water recreation, freshwater (warm) aquatic habitat, wildlife habitat (terrestrial), and rare, threatened, or endangered species habitat. The potential uses are industrial service supply and water contact recreation.

Groundwater from wells within the Study Corridor shows high sodium chloride and total dissolved solids levels and poor overall quality. Principal contaminants affecting existing groundwater quality in the project vicinity include chloride from seawater intrusion and release of dissolved salts from Tertiary marine sediments, organic material from septic system use, and dissolved solids and chemicals from infiltration of urban and agricultural runoff. Potential beneficial uses for groundwaters include municipal and domestic supply, agricultural supply, and industrial service supply.

3.6 LAND USE, SOCIAL AND ECONOMIC

This section describes the existing and planned land use, agriculture, social and economic character, and growth dynamics of the Otay Mesa area. This section inventories current human use patterns within the area which will be affected by the proposed project.

3.6.1 Land Use

The land use study area extends from the vicinity of I-805 to the San Ysidro Mountains (west to east) and from the Otay River Valley to the international border (north to south).

Jurisdictions

The first subsection identifies local planning agencies which administer public uses within the Study Corridor and which have jurisdiction over land use planning and development approvals. The second subsection addresses public and private land ownership within the Study Corridor.

Planning Jurisdictions

Jurisdictional agencies in the wider study area include the City of San Diego, County of San Diego, City of Chula Vista, and the City of Tijuana, Mexico. The majority of the Study Corridor falls within the City of San Diego's jurisdiction. The County of San Diego's planning jurisdiction is limited to the easternmost portion of the Study Corridor, and is generally east of Sanyo Avenue and Enrico Fermi Drive. Figure 3-1 provides identification of the Planning Areas Boundaries. The City of Chula Vista is located approximately 0.3 kilometer (0.2 mile) north of the northernmost edge of the Study Corridor. The City of Tijuana is located to the south across the international border. The Study Corridor does not include any portion of either the City of Chula Vista or the City of Tijuana.

Ownership

State and Federal Lands

There are no state or federal lands located within the Study Corridor.

Special Districts

Several public service and public utility agencies have facilities in the area over which they may have easement, ROW, or other public facilities and services jurisdiction. The Study Corridor is located within the San Ysidro Elementary School District and the Sweetwater Union High School District. There is now one school located within the Study Corridor, and there are plans for future schools. The existing and planned school locations are shown on Figure 3-6. The Otay Water District owns a 4.0 hectare (9.84 acre) parcel south of Airway Road and west of Harvest Road. The majority of this parcel is located within the Study Corridor. A 0.8 hectare (2.07 acre) parcel located within the Study Corridor east of Harvest Road and south of OMR is owned by SDG&E. Pacific Bell owns a 0.3 hectare (0.7 acre) parcel within the Study Corridor located south of Camino Maquiladora and west of Cactus Road. Figure 3-2 provides a map showing the Special District Boundaries within the Study Corridor.

Private Lands

Most land in the project area is privately owned. These parcels vary in size from small, approximately 8.0 hectares (20 acres), to the very large, approximately 9,270 hectares (22,900 acres). Many of these parcels are developed and others are proposed for development with residential, commercial, and industrial uses. The development plans for parcels within the Study Corridor consist mainly of commercial and industrial developments and have been proposed in

compliance with the adopted planning documents for the area. Planned development areas are shown on Figure 4-4.

3.6.2 Planning Policy Documents

Three programs unrelated to specific jurisdiction, which provide standards and objectives relevant to the project Study Corridor include the San Diego Association of Governments (SANDAG) RTP, NCCP, and the MSCP.

Regional Transportation Plan 2030 (RTP)

SANDAG released the latest RTP for the San Diego region in April 2003. The 2003 RTP addresses the transportation needs of the region through 2030. The Revenue Constrained Scenario includes Route 905 as a major capital improvement, a six-lane freeway from I-805 to the Otay Mesa POE, to be constructed by 2014. The Reasonably Expected Revenue Scenario, upon which the RTP is based, assumes Route will be built by 2010.

In the 2003 RTP, Route 905 as a six-lane highway will address the bi-national transportation needs of the region that have increased as the amount of traffic crossing the international border has grown. In 2002, more than 780,000 trucks crossed northbound at the San Diego - Baja California border, and in 2001, the Otay Mesa POE handled nearly \$20 billion worth of freight. The 2030 RTP identifies Route 905 as a six-lane freeway, which will provide congestion and heavy-vehicle relief to OMR.

Natural Community Conservation Plan (NCCP)

Following legislation which authorized preparation and approval of conservation plans for plant communities and wildlife, the NCCP was initiated by the California Department of Fish and Game (CDFG) and the United States Fish and Wildlife Service (USFWS) in 1991. The goal of the NCCP program is to preserve local and regional biological diversity, reconcile urban development and wildlife needs, and meet the objectives of both the state and federal Endangered Species Acts. The NCCP program has developed a planning process and a set of biological conservation guidelines to facilitate the establishment of biologically defensible multiple species preserves.

Multiple Species Conservation Program (MSCP)

The MSCP is a comprehensive habitat conservation planning program that addresses multiple species habitat needs and the preservation of native vegetation communities. The MSCP is a subarea of the NCCP. The MSCP creates a preserve system to replace the previous approach of using fragmented project-by-project biological mitigation areas, which by themselves do not contribute adequately to the continued existence of sensitive species, or to maintenance of natural bio-diversity. Within the Study Corridor, the City of San Diego MSCP maps show preserve areas associated with the Mesa and the Spring Canyon habitat complex south of OMR. The preserve areas identified are part of the Multi-Habitat Planning Area (MHPA), a subarea of the MSCP. The MSCP/MHPA preserve boundary within the Study Corridor is shown on Figures 4-12A and 4-12B. A canyon to the west of the existing north-south trending portion of Old Otay Mesa Road is also included as part of the MSCP preserve area. The MSCP/MHPA maps also show a corridor linkage area extending north from the Spring Canyon complex across OMR toward Dennery Canyon.

3.6.3 General and Community Plans

This planned land use discussion provides a brief description of the following plans which address the Otay Mesa region:

- City of San Diego Progress Guide and General Plan (1989, amended 1990)
- City of San Diego Otay Mesa Community Plan (1981, map 1997)
- County of San Diego General Plan Land Use Element (1994)
- County of San Diego Otay Subregional Plan (1993)
- County of San Diego East Otay Mesa Specific Plan (1994), as amended (2000)
- City of Chula Vista General Plan (1995)
- Ciudad de Tijuana Plan de Desarrollo Municipal (1993-1995)
- Ciudad de Tijuana Programa de Desarrollo Urbano del Centro de Poblacion (1994)

City of San Diego

Progress Guide and General Plan

The City of San Diego *Progress Guide and General Plan* (1989) shows multiple planning categories for the study area. Within the boundaries of the focused Route 905 Study Corridor, planned uses include residential and attendant community services, community and regional centers, office and specialized commercial, and general industrial uses planned for the majority of the Study Corridor south of OMR. A 1990 amendment to the plan shows the entire mesa area as planned urbanization, and shows areas both east and north of the plan to the City of Chula Vista/ Rancho Otay boundary as prospective annexation area. This area encompasses the portion of the Study Corridor that is currently under County jurisdiction. The existing land uses in relation to the project impact footprints are depicted on Figures 4-2, 4-3A, 4-3B, and 4-3C.

Otay Mesa Community Plan

The Otay Mesa Community Plan (1981, updated map 1997 incorporating MSCP) is a primary planning document for the Route 905 Study Corridor (see Figure 3-3). Goals and objectives set forth in the plan were intended to guide public and private development in the area through the year 2000. The policies and long-term planning reflected in the document are current and are expected to remain so. The plan shows development which is generally very close to that shown in the City of San Diego General Plan summarized above. Large blocks of industrial use are shown west, south, and east of Brown Field.

The transportation discussion within the plan includes conclusions by both the Department and SANDAG that development of a state route to an Otay Mesa border crossing will be required, based on lack of capacity at the San Ysidro POE, and regardless of future development on Otay Mesa. In addition, the residential and associated development noted above, as well as planned industrial development on the mesa, require an overall upgrade of roads which are generally rural or unimproved in nature.

County of San Diego

San Diego County General Plan

County lands in the Otay Mesa region are generally located east of the City of San Diego and the City of Chula Vista, and are specifically addressed within the Otay Subregional Plan (1993) and the subsequent East Otay Mesa Specific Plan (1994).

Otay Subregional Plan of the San Diego County General Plan

The 1993 Subregional Plan recognizes the value of the border area and provides goals related to land use, public services and facilities, circulation, conservation, coordination and implementation. Otay Mesa represents an unusual opportunity to plan a major regional and international industrial center in a comprehensive manner and that the mesa should be treated as a single planning and development unit for which industrial design criteria should be developed.

East Otay Mesa Specific Plan

The East Otay Mesa Specific Plan was adopted in 1994 to guide development of the unincorporated area on Otay Mesa. This specific plan implements the policies of the County General Plan, including the East Otay Mesa Specific Plan (please see Figure 3-4). A general plan amendment was processed concurrently with the adoption of the specific plan which changed the road alignments shown in the circulation element and the land uses identified on the Otay Subregional Plan to conform with the adopted specific plan. Planned uses for the portion of the plan area within the Study Corridor are identified as regional commercial and mixed industrial.

An amendment to the Specific Plan was approved by the Board of Supervisors in June 2002, which modified the land use plan and development regulations for the western approximately 809 ha (2,000 ac) of the 1365 ha (3,374 ac) specific plan area. The Specific Plan Amendment differentiates among the various industrial uses allowed by the plan, provides for a commercial overlay zone to support the industrial development, specifies areas for technology business park development, and leaves the circulation system proposed in the 1994 Specific Plan unmodified.

City of Chula Vista

Chula Vista General Plan

The 1995 Chula Vista General Plan designates planned land uses for the City, located approximately 1.6 kilometers (1.0 mile) north of the I-805/Route 905 interchange. The General Plan was amended to reflect uses proposed as part of The 1993 Otay Ranch General Development Plan. Previously within the City's sphere of influence, this area was annexed in early 1997.

City of Tijuana

Ciudad de Tijuana Plan de Desarrollo Municipal (1993-1995)

This is the general planning document for the City of Tijuana. Its purpose is to establish fundamental objectives and strategies guiding the City's development for the near future. It is largely superseded by the more specific document discussed below.

Ciudad de Tijuana Programa de Desarrollo Urbano del Centro de Poblacion (1994)

This document addresses land uses within the City of Tijuana. The Otay Mesa Sector, located south of and adjacent to the Otay Mesa POE is experiencing rapid growth; the Tijuana population was expected to reach 2,736,325 in 1999 and grow to 4,850,022 by 2013. As a result of this growth, Tijuana has experienced occasional breakdowns in its ability to maintain infrastructure and transportation services at functioning levels. Planned development in the Otay Mesa Sector includes expansion of the airport road to the east and west, widening of the main thoroughfares, and the development of a light rail system to alleviate stress on the existing, overburdened transportation facilities.

3.6.4 Existing Land Uses

The existing land uses within the Study Corridor consist primarily of light industrial, grading and/or developing, undeveloped, and roadways. Other uses (single family residential, other utilities, school, and mixed use), while divergent in nature, comprise a much smaller percentage of Study Corridor land uses. Table 3-1 provides the amounts of existing land uses within the Study Corridor, Figures 4-2, 4-3A, 4-3B, and 4-3C depict them.

Table 3-1
STUDY CORRIDOR EXISTING LAND USES

Land Use	Hectares	Acres
Light Industrial	158.0	390.4
Commercial	14.4	35.6
Mixed Commercial (airport related)	9.1	22.5
Airport open space	27.0	66.7
Mixed Use	7.7	19.0
Single-family residential	4.5	11.0
Multi-family residential	0.5	1.1
Grading and/or Developing	98.1	242.3
Undeveloped	423.2	1,045.6
Agriculture	58.7	145
Roadways	143.4	354.4
School	6.9	17.2
Other utilities	8.5	20.9
TOTAL	959.7	2,371.7

The POE, located immediately adjacent to the southern-most portion of the Study Corridor, is a major land use on the mesa and is a primary focal point for much of the existing and planned

development within the corridor. Industrial uses related to vehicle sales, storage, service, and/or wrecking are located west of Heritage Road, south of Gateway Park Road, and along Cactus Road. In addition, several graded areas with existing paved access roads are currently in various stages of industrial development.

The only potentially identified institutional use within the Study Corridor is a home-based church located at 1708 Cactus Road (Chapel of Good News). Public service facilities within the Study Corridor include the City of San Diego's Otay Mesa Fire Station No. 43, an expanded SDG&E substation in the eastern portion of the corridor, an Otay Water District storage yard, and an abandoned City of San Diego sewage treatment plant. The Tripp Landfill, an unpermitted inactive landfill which occupies and fills the head of Spring Canyon adjacent to, and west of, Cactus Road. A number of vacant areas are present, including several natural canyons (including portions of Spring and Dennery canyons and the Otay River Valley) and a number of disturbed areas which may have been previously used for agriculture.

Due to declining agricultural activity and recent development within the Study Corridor, land use conditions have changed since circulation of the DEIS/DEIR. Increases in the total area of roadways are attributable to continued urbanization and separation of roads from what was previously classified as undevelopable lands. Decreases in agricultural land is due to the reclassification of this land as undeveloped or graded/developing. Remaining agricultural land use observed in 2003 includes one area south of Otay Mesa Road, north of Airway Road and east of the industrial development along Sanyo Avenue, as well as a second area north of Airway Road and west of Interim Route 905. These areas are believed to be dry farmed for oat hay or other grain crops. Industrial and commercial land has increased due to the continued development of the Otay Mesa area and the category of School has been added due to the completion of San Ysidro High School.

Specific changes to land use categories follow below. Within the West Segment of the Study Corridor, development characterized as residential and mixed use has occurred along the east side of I-805 (Figure 4-3A). Within the Middle Segment, land formerly mapped as undeveloped and agriculture now supports San Ysidro High School; commercial and industrial development has occurred on formerly undeveloped or graded/developing land north and south of OMR near its intersections with Heritage and Cactus roads; farther south along Heritage Road, land formerly mapped as grading/developing land features industrial development. In the East Segment, between Britannia Boulevard and La Media Road, industrial development exists on land formerly mapped as graded/developing and undeveloped; along existing Route 905, between OMR and Siempre Viva Road, land has been converted from undeveloped, agriculture, and grading/developing land to industrial and public utility uses; and recent industrial development has replaced graded/developing land near the intersection of Airway Road and Enrico Fermi Drive.

Agriculture

Agriculture is San Diego's fourth largest industry in terms of total dollars to the economy, behind manufacturing, defense, and the visitor industry. The total 1996 value of crops produced in the region climbed six percent over 1995, to just over \$1.1 billion. Agriculture on Otay Mesa dates back to before the turn of the century. As many as 28 families lived on the mesa at that time. Since the early 1980s, the amount of land in agricultural production has declined steadily due to rising production costs (primarily labor and water), competition from operations in Mexico, and the gradual conversion of agricultural land to industrial land.

Figure 3-5 is a map of important farmland within the Study Corridor, based on maps from the California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. The most recent maps available for the project area were completed in 2000. Figure 3-5 shows that there is only one 2.8-hectare (7.0-acre) area of prime farmland left within the Study Corridor, northwest of the intersection of Harvest and Otay Mesa roads. Other important farmland designations within the Study Corridor include 64.5 hectares (159.3 acres) of farmland of statewide importance, 438.5 hectares (1,083.5 acres) of farmland of local importance, and 93.0 hectares (229.8 acres) of grazing land. While the entire Study Corridor was previously mapped as important farmland, 361.0 hectares (899.0 acres) are now considered urban/built up land, or other non-agricultural land, and therefore have no important farmland designation.

Form AD 1006, a farmland impact determination for the proposed project from the Natural Resources Conservation Service, appears in Appendix F. However, it should be noted that prime farmland, as defined in the Final Rule of the Farmland Protection Policy Act, does not include land currently in or committed to urban development or water storage. The Otay Mesa Community Plan and East Otay Mesa Specific Plan call for the conversion of agricultural uses to urbanized uses, with agricultural use considered as an interim use.

3.6.5 Community Boundaries

The primary consideration in neighborhood identification is the amount of interaction within and between areas. Neighborhoods and communities can also be defined by housing type and/or planned development patterns. The amount of change introduced into a neighborhood by a project will be a function of both the type of impacts incurred and the neighborhood's existing characteristics. The urban element of a proposed large highway facility causes different effects to a rural community than to an urban community.

Otay Mesa is predominantly undeveloped and the residential development that is present in the area is primarily rural and scattered. Within the project study corridor, the residential housing is separate and not related to the dense residential development west of I-805 and south of the international border. The San Ysidro Mountains and Otay River Valley constitute the Mesa's eastern and northern natural borders, respectively. The mesa is currently becoming a more urbanized area, complete with large scale industrial development, supporting commercial uses, and master-planned residential developments.

Figure 3-6 identifies the existing community facilities for Otay Mesa. Otay Mesa is more rural in character than the region as a whole and the 2000 Census showed that 67% of the population in the Otay Mesa Census Tracts (Figure 3-7) is categorized as being rural.

3.6.6 Housing and Population Characteristics

The Otay Mesa area differs markedly from the San Diego region from a social and demographic perspective. Census 2000 provides a demographic profile and comparison between the Otay Mesa area (which was previously made up of one Census Tract, but now consists of three Census Tracts 100.14, 100.15, and 213.02 [Block Group 2]) and San Diego County. The Otay Mesa area had a total population of 11,088 persons in 2000. The population in the three census tracts crossing the project area nearly quadrupled since the 1990 census (from approximately 1,123 people in 1990 to approximately 4,218 in 2000). There was a four-fold increase in the number of residential housing units in the area, however, no changes in the number of homes within the

Study Corridor occurred, although residential development is now occurring along the east side of I-805.

Residents of Otay Mesa showed a larger number of persons per household and substantially higher proportion of minorities compared to the region. Residents were similar in age on average compared to County residents, and the residents of working age (16-64) included a higher proportion of people with a mobility limitation or work disability. The percentage of persons below the poverty level was lower than that of the county. Residents were more likely to be employed in government, wholesale trade, and manufacturing occupations, relative to County-wide residents.

Housing in the Otay Mesa area consisted of 1359 total units in 2000, which were mostly owner-occupied. The residential area of potential direct impact for the proposed project consists of a cluster of five dwelling units, primarily single family homes, on three parcels. These dwelling units are located on the west side of Cactus Road, south of OMR. The homes of potential impact are not part of any specific neighborhood, as housing on the mesa is dispersed. There are no unique neighborhoods formed or distinguished by proximity to community facilities, community interaction, or the location of commercial services. The commercial districts in Otay Mesa are new, primarily serving pass-through traffic, or industrial users.

3.6.7 Circulation and Access

Regional north-south access to the Otay Mesa area is provided by I-5 and I-805. East-west access is via Route 905 and OMR. In the vicinity of Brown Field, OMR is crossed by several primary north-south streets, including (from west to east) Heritage Road, Cactus Road, Britannia Road, and La Media Road. There are two main east-west streets paralleling OMR (Airway Road and Siempre Viva Road). A map of the existing transportation facilities in the project area is provided on Figure 3-8.

The area's major access route, OMR, is currently operating at a Level of Service (LOS) "E" from Heritage Road to Britannia Boulevard and LOS "C/D" from Heritage Road west. The residents of Otay Mesa are subject to traffic conditions dominated by trips to and from the POE. As such, the residents have extreme constraints to their mobility when traveling in and out of Otay Mesa.

3.6.8 Development Plans and Proposals

There are major development proposals for Otay Mesa, which include large land ownership areas. Figure 4-4 identifies the planned development areas within the Study Corridor. Currently approved development for the Otay Mesa subregion includes the California Terraces Precise Plan (Figure 3-9), Santee Investments Precise Plan (Figure 3-10), Otay International Center Precise Plan (Figure 3-11), Otay Ranch General Development Plan/Subregional Plan, and the Border Business Park. The California Terraces and Santee Investments Precise Plans include approximately 4,700 housing units. The Otay International Center has roughly 142 hectares (350 acres) of industrial/business park land planned and roughly 20 hectares (50 Acres) of planned commercial uses. Other major development proposals within Otay Mesa include 25 tentative and/or final maps submitted for this area. The development plans are discussed in detail in Chapter 4. Appendix C provides a list of approved development plans and proposals.

It is assumed that development will proceed as market needs dictate, through buildout. The Development Plans, Precise Plans, and Master Plans Associated with each of these development

proposals are discussed in detail within the 1999 Socioeconomic Technical Report and the 2004 Addendum.

3.6.9 Growth Conditions and Management Policies

Growth in the San Diego region is frequently a contentious issue on many different fronts. The current position of SANDAG, the San Diego region's primary regional planning organization, is that current regional growth trends will result in use of all land currently zoned residential by 2005 (San Diego Daily Transcript, April 1, 1997). SANDAG has projected that 3.8 million people will be living in the region by 2015 (an additional one million persons over 1995 levels).

County of San Diego

In November of 1988, Proposition C was approved by voters, sanctioning a regional approach to growth management. Proposition C was the product of the County and SANDAG's Regional Growth and Planning Review Task Force. The County Department of Planning and Land Use utilizes the Regional Growth Management Plan to evaluate the growth-inducing effects of projects. The purpose of such reviews is to make sure that growth does not occur without the facilities and services to serve such development.

Another growth management tool at the County level is the Resource Protection Ordinance, adopted by the County Board of Supervisors in May, 1989. This ordinance contains development restrictions designed to protect wetlands, floodplains, hillsides, canyons and lands of biological or historical importance. It is designed not to restrict development per se, but to minimize the disruption to the environment from development.

City of San Diego

In August 1990, the San Diego City Council adopted the Progress Guide and General Plan, a 20-year plan regulating the pace of future growth. This plan ties the approval of new residential and commercial development to the availability of adequate transportation and other infrastructure facilities.

SANDAG Regional Growth Management Strategy

In February 1992, SANDAG released the Revised Draft Regional Growth Management Strategy. The Strategy sets standards and objectives for nine environmental and economic factors: air quality, transportation system and demand management, water, sewage treatment, sensitive lands preservation and open space protection, solid waste management, hazardous waste management, housing, and economic prosperity.

State-Wide Growth Management

In January 1993, the Council released a final report entitled "Strategic Growth: Taking Charge of the Future - A Blueprint for California." This document provides recommendations in the areas of infrastructure, housing, integration and coordination of state planning, local comprehensive plans, CEQA reform, permit streamlining, new and reformed councils of government, Office of Planning and Research assistance, rural development, water, congestion management planning, air quality and environmental reforms, and agricultural protection. Each of the growth policies described above have been implemented not to forestall growth, but to ensure that growth occurs in a

planned manner, with the primary goals of protecting important natural resources and ensuring that adequate infrastructure accommodates growth.

3.6.10 Economic Resources

One significant source of economic growth in the region relates to international trade and it continues to be a leading economic sector in the region. The bulk of the activity is related to burgeoning trade with Mexico and the Pacific Rim. Mexico is San Diego's primary trading partner; \$3.0 billion is exported annually from San Diego to Mexico, which is over 40 percent of San Diego's total exports. These economic factors demonstrate the importance of improving transportation facilities within the Otay Mesa region.

Regional Economic Trends

In terms of the regional economy, the County has experienced positive economic growth since 1994. After expanding to 8 to 10 percent per year from 1997 to 2000, gross regional product growth slowed to 6.3 percent in 2001 and 5.1 percent in 2002, and the inflation rate was 3.3 percent. San Diego experienced slower growth in 2003 for reasons that are most likely due to the September 11, 2001 terrorist attacks, war in Iraq, outbreaks of SARS virus, California budget deficit, and uncertainties of stock market performance.

Market Demand and the Otay Mesa Subregion

The Otay Mesa area is a major subregion in San Diego County, slated for large scale industrial development, supporting commercial use, and new residential tracts. It was one of the most productive agricultural areas in the region, but is being transformed in the face of rising agricultural costs (primarily water) and large-scale master planning of urban development. A primary defining feature of Otay Mesa is the POE, which has been operating since 1986. It has taken over all commercial truck traffic for the San Diego-Tijuana border, which was handled at San Ysidro until January of 1995. More than two-thirds of all truck traffic between California and Mexico now uses the POE.

The commercial border crossing and planned construction of Routes 905 and 125 South makes this area ripe for cross-border trade and other related development. It is anticipated that both population and employment growth will increase substantially in Otay Mesa (as indicated by projections for the 1990 100.07 Census Tract. [The 1990 100.07 Census Tract is now the 2000 100.15 Census Tract. Projections for this Tract were not performed for the 2000 Census]). Between 1990 and 2015, population is projected to increase from 1,123 to 82,330 persons, growing at an average annual rate of roughly 19%. Total employment is projected to increase from 7,138 to 48,875, increasing at an average annual rate of 8% over the 25-year period. Otay Mesa will clearly become an important economic force within the region over the next few decades.

Residential Markets

The median contract rent has increased since 1990 (by approximately 73 percent to \$782 per month) and is now higher than the regional median. According to SANDAG, as of January 2003, 4.1 percent of all housing units in Otay Mesa (the Otay Mesa area is incorporated within San Ysidro) were vacant, compared to the region's vacancy rate of 4.4 percent. The March 2003 rental vacancy rate for this market was 2.4 percent, as compared to 4.1 percent for the County of

San Diego. The San Ysidro submarket recorded the second lowest vacancy rate in the County (as of March 2003).

The percentage of owner-occupied units increased from 37.5 percent to 76.2 percent between 1990 and 2000. The median value of owner-occupied homes rose by approximately 80 percent to \$276,250. A historical review of home sales reveals the Otay Mesa market has recorded an average of 133 homes sold annually since 1997. The median sales price for the Otay Mesa zip code was \$270,000 in 2002, as compared to \$355,000 for the County.

3.7 VISUAL QUALITY

The western two-thirds of Otay Mesa is a true mesa, which consists of a virtually flat-elevated area bounded by steep cliffs on one or more sides. The eastern one-third is characterized by low rolling hills that increase in elevation to the east and transition into the San Ysidro Mountains. To the north, the slopes of the Otay River Valley are steep. Several major canyons (e.g. O'Neal, Spring and Moody) penetrate deeply into Otay Mesa and comprise the principal local drainage system. Three visual character units are identified in the Study Corridor: Mesa Edge, Mesa Top, and Urban.

The mesa top has been heavily disturbed by agricultural and commercial/industrial uses. Development has been inconsistent by location and is spread out in a number of various locations. A variety of structures are scattered throughout the area, none of which will be considered architectural assets. Landscape treatments are generally non-existent, except along the newer industrial developments located east of Britannia Boulevard. Most of the open space within this area is grassland and farmland with very little variation in landform or vegetation cover. The existing visual quality based on physical character is low.

The western edge of Otay Mesa contains steep slopes and deeply cut canyons that are highly visible because of their uplifted aspect. Native vegetation (mostly sage scrub) covers these canyons and a eucalyptus grove occurs in one of them. The physical characteristics of the mesa's edge are more interesting and diverse than its top. However, because of the disturbance and adjacent character, the visual quality is considered low. The urban unit is extensively developed and is located at the eastern end of the project area near the POE. Although the landform is similar to the mesa top, existing development and landscape treatments are of a higher visual quality.

The proposed project will be viewed by motorists and people in commercial/industrial establishments and by viewers from the airport, farmlands, and the few homes on the Mesa. The following five views within the project area are prominent:

1. Northbound and southbound viewers from I-805 have a view of the existing mesa edge. Changes to hillsides north and south of Route 905 will be highly visible.
2. At the crest of the hill where the existing Route 905 currently meets OMR, westbound viewers have expansive views to the ocean and San Diego Bay including Imperial Beach, Coronado, and Point Loma.
3. At the crest of the hill (and along a large portion of OMR) where the existing Route 905 currently meets OMR, eastbound viewers look across Otay Mesa to the San Miguel and Otay Mountains.

4. Northbound Route 905 drivers just north of the POE have views towards distant mountains to the north that are visually prominent and unique. Existing pastoral views in the foreground with background views of San Miguel and other coastal hills and mountains are important.
5. The “first look” at the United States is considered regionally significant to northbound Route 905 drivers just north of the POE. There are no major landforms, architectural structures, or landmarks in this area, however it is a national and regionally unique gateway.

3.8 BIOLOGICAL RESOURCES

Eleven types of surveys were completed for the Route 905 project, these included: vegetation mapping; Linne soils; rare plant surveys; vernal pool mapping; fairy shrimp surveys; Quino checkerspot butterfly surveys; federal and state wetland delineation; coastal California gnatcatcher territory monitoring; and presence/absence surveys for the coastal California gnatcatcher, orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), and San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). The results of the surveys are mapped and described in detail in the 1999 Biological Resources Technical Report for the State Route 905, a September 2000 Errata, and a September 2003 Addendum. All of the referenced surveys followed the recommended agency protocols established at that time. Some of the mapping and analyses utilized earlier survey data, in addition to more recent information. Additional discussion is provided in applicable portions of the Biological Resources Technical Report, the September 2003 Addendum to the report, the SR-905 Rare Plant Surveys, and the Biological Assessment for the State Route 905 Extension.

Vernal pools and road pools identified within the Study Corridor in 2002 (Figure 4-16) were assigned a number for reference purposes, including fairy shrimp sampling. The numbering differs from that of previous mapping efforts, because conditions in the region have changed substantially. A comparison of previous and currently used pool number assignments is provided in Appendix N of this FEIS/FEIR. Updated vernal pool and vegetation mapping for the privately owned OCCS Preserve was obtained in 2002 and are reflected in the mapping and analysis within the document. In general, the annual plant locations did not include actual counts, but instead represent loci of populations within the OCCS Preserve. Road pools that did not contain fairy shrimp were not included in the vegetation and vernal pool mapping.

A species list received from the USFWS (May 18, 1999) identified those wildlife and plants that may occur in the vicinity of the project. In 2003, the Department requested an updated species list from the USFWS and received a written response, dated March 6, 2003. The lists outlined the candidate, proposed, threatened, or endangered species that have the potential to be affected by the proposed Route 905 (Table 3-2 and Appendix A). The March 2003 letter contains the most current information for the project area. Please refer to Figures 4-13A, 4-13B, 4-14A, and 4-14 B for approximate locations of species occurrence. Species that were listed in the 1999 USFWS letter, but are not likely to occur within the Study Corridor, are identified within Appendix A. The conditions within the Study Corridor are unsuitable for these species and they are not discussed further.

Table 3-2
FEDERALLY LISTED SPECIES
THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED ROUTE 905

Endangered
San Diego button-celery
Otay Mesa mint
San Diego ambrosia
California Orcutt grass
Riverside fairy shrimp
San Diego fairy shrimp
Least Bell's vireo
Quino checkerspot butterfly
Threatened
San Diego thornmint
Spreading navarretia
Coastal California gnatcatcher

3.8.1 Habitats

Seven native vegetation communities occur within the Study Corridor: vernal pools, maritime succulent scrub, Diegan coastal sage scrub, coastal scrub, freshwater marsh, southern willow scrub, and mule fat scrub. In addition to these native vegetation communities, there are 10 naturalized, unvegetated, and/or disturbed habitat types within the Study Corridor: road pools, disturbed wetlands, seasonal ponds, non-native grassland, eucalyptus woodland, tamarisk scrub, non-native vegetation, disturbed, developed, and agricultural areas.

Out of the 17 vegetation communities, the following 11 are considered sensitive: vernal pools, maritime succulent scrub, Diegan coastal sage scrub, coastal scrub, non-native grassland, freshwater marsh, southern willow scrub, mule fat scrub, disturbed wetland, tamarisk scrub, and seasonal pond. The project footprint does not contain designated or proposed critical habitat for any species listed by the USFWS. Please see Table 3-3 and Figures 4-12A, 4-12B, and 4-12C for a summary and locations of the Study Corridor communities.

Areas under United States Army Corp of Engineers (ACOE) jurisdiction occur in eight drainages within the Study Corridor. Wetlands under California Department of Fish and Game (CDFG) jurisdiction occur in the same eight drainages but are larger in extent, in some cases, due to State definitions. With respect to Route 905's impacts to these resources and the Department's coordination efforts with ACOE and CDFG, please refer to Chapter 6 to view a list which outlines the Department's coordination history with the resource agencies; Figures 6-5 and 6-8 are copies of letters from the ACOE which pertain to jurisdictional impacts. The following contains a description of the various wetland and upland vegetation communities within the Study Corridor for the proposed project.

Table 3-3
SUMMARY OF HABITAT TYPES IN THE ROUTE 905 STUDY CORRIDOR

Habitat Type	Hectare(s) (Acre[s])*
Wetlands	
Vernal pools	0.70 (1.72)
Road pools (with fairy shrimp)	0.02 (0.06)
Southern willow scrub	1.99 (4.92)
Southern willow scrub - disturbed	0.08 (0.19)
Mule fat scrub	0.77 (1.91)
Mule fat scrub - disturbed	0.25 (0.62)
Freshwater marsh	0.70 (1.72)
Disturbed wetland	2.94 (7.26)
Seasonal pond	0.60 (1.48)
Tamarisk scrub	0.64 (1.58)
Subtotal	8.68 (21.46)
Uplands	
Maritime succulent scrub	10.0 (24.7)
Maritime succulent scrub – disturbed	0.8 (1.9)
Diegan coastal sage scrub	13.7 (34.0)
Diegan coastal sage scrub – disturbed	11.6 (28.8)
Diegan coastal sage scrub/ Nonnative grassland	1.8 (4.5)
Coastal scrub	0.1 (0.3)
Nonnative grassland	98.5 (243.5)
Nonnative grassland/disturbed habitat	84.3 (208.4) [†]
Nonnative vegetation	7.4 (18.4)
Eucalyptus woodland	2.5 (6.1)
Agriculture	21.1 (52.1)
Disturbed habitat	211.1 (521.7)
Developed area	264.5 (653.5)
Subtotal	7.27.6 (1,797.9)
Total**	736.3 (1,819.4)

*Areas are approximate. Wetland acreages are reported to the nearest hundredth and uplands to the nearest tenth.

[†]Total includes approximately 38.6 hectares (95.4 acres) of nonnative grassland and 45.7 hectares (113.0 acres) of disturbed habitat.

**Total may vary slightly from other Study Corridor area calculations due to rounding.

3.8.1.1 Wetland Habitats

Vernal Pools

Vernal pools are ephemeral bodies of water that form from winter and spring rains. The pools are diverse, highly specialized habitats associated with a subsurface hardpan or claypan (that inhibits the downward percolation of water) on mesas with characteristic mounded topography. Plant species recorded in pools within the Study Corridor (between 1995 and 2002) have included long-stalk water-starwort (*Callitriche marginata*), stonecrop (*Crassula aquatica*), spike-rush (*Eleocharis* sp.), San Diego button-celery, toad rush (*Juncus bufonius*), flowering quillwort (*Lilaea scilloides*), grass poly (*Lythrum hyssopifolium*), pill-wort (*Pilularia*

americana), dwarf woolly-heads (*Psilocarphus brevissimus*), Otay Mesa mint, Otay tarplant, little mouseling (*Myosurus minimus*), and spreading navarretia. The highest diversity of vernal pool plant species occurs in a complex between two tributaries of Spring Canyon. Due to extensive ground disturbance and the inherent sensitivity of vernal pool habitat to disturbance, the majority of vernal pools are now primarily remnant depressions along roads or in other manufactured depressions. Vernal pools within the Route 905 Study Corridor are concentrated on mesa tops near Spring Canyon and in the privately owned OCCS Preserve. Isolated vernal pools also occur in other scattered locations. Approximately 0.70 hectare (1.72 acres) of vernal pool surface area occurs within the Study Corridor, including 0.45 hectare (1.12 acres) within the OCCS Preserve.

Road Pools with Fairy Shrimp

Road pools are areas that temporarily pond water in disturbed places after the winter rains, but do not support vernal pool flora. Three of the road pools within the Study Corridor support the endangered San Diego fairy shrimp and/or Riverside fairy shrimp. The habitat type is primarily located on dirt roads in the western portions of the Study Corridor. Occupied road pools are considered sensitive by the United States Fish and Wildlife Service (USFWS), Regional Water Quality Control Board (RWQCB), City of San Diego, and County of San Diego, as the basins support listed species. An estimated 0.02 hectare (0.06 acre) of road pools was documented within the Study Corridor.

Seasonal Ponds

Seasonal ponds are larger basins that contain open water for an extended portion of the year. Three seasonal ponds occur within the Study Corridor, with one located in the east portion and two to the west. The northernmost pond currently functions as a detention basin for Brown Field. The southernmost pond is fed by runoff from OMR. The ponds may dry up during the summer and fall (except in a wetter-than-average year) and their margins support wetland dependent vegetation. Seasonal ponds are regulated under Section 404 of the Clean Water Act (CWA) and by the state, and considered sensitive habitat by the City and County of San Diego, except where it exists as part of a constructed drainage structure or is isolated. Within the Study Corridor, seasonal ponds total 0.60 hectare (1.48 acres).

Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent monocots typically reaching a height of 3 to 4.5 meters (12 to 15 feet). The habitat requires soils that are saturated for extended periods and surface water, if present, that moves slowly. Dominant freshwater marsh species in the Study Corridor include broad-leaved cattail (*Typha latifolia*), tule (*Scirpus acutus* var. *occidentalis*), and mariposa rush (*Juncus dubius*). Most of the freshwater marsh is concentrated in and around Spring Canyon and south of St. Andrews Avenue in a manufactured drainage ditch extending east-west through the middle of the Study Corridor. The habitat type, totaling 0.70 hectare (1.72 acres), is regulated under Section 404 of the CWA and by the state, and considered sensitive by the City and County of San Diego, as it is a wetland, declining in extent.

Southern Willow Scrub (including disturbed)

Southern willow scrub is a riparian community comprised of arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), and mule fat (*Baccharis salicifolia*). The understory is

dominated by facultative plant species, such as cocklebur (*Xanthium strumarium*), western ragweed (*Ambrosia psilostachya*), and Douglas sagewort (*Artemisia douglasiana*). Southern willow scrub, like freshwater marsh, is concentrated in and around Spring Canyon and in a manufactured drainage ditch south of St. Andrews Avenue. There are approximately 2.07 hectares (5.11 acres) of southern willow scrub within the Study Corridor, of which 0.08 hectare (0.19 acre) is disturbed. The habitat is regulated under Section 404 of the CWA and by the state, and considered sensitive by the City and County of San Diego, for the same reasons as stated for freshwater marsh.

Mule Fat Scrub (including disturbed)

Mule fat scrub is composed primarily of mule fat, often occurring in a thicket that may be of varying densities. Like southern willow scrub, mule fat scrub typically occurs along drainages and/or riparian corridors. It can also occur in drier drainages compared to those that support southern willow scrub and freshwater marsh. An estimated 1.02 hectares (2.53 acres) of mule fat scrub exists within the Study Corridor, of which 0.25 hectare (0.62 acre) is disturbed. The habitat is primarily located in and around Spring Canyon and just west of Sanyo Avenue. Mule fat scrub is regulated under Section 404 of the CWA and by the state, and considered sensitive by the City and County of San Diego, because it usually is classified as wetland habitat.

Tamarisk Scrub

Tamarisk scrub is dominated by tamarisk or salt-cedar (*Tamarix* sp.), a non-native plant species. There may be native species as well, such as mule fat or willows, but only as sub-dominant plants. Tamarisk scrub, totaling 0.64 hectare (1.58 acres), is located primarily within the main trunk of Spring Canyon, which traverses the southern part of the Study Corridor. Although tamarisk is considered a noxious weed and is a target for removal by many pest-plant control programs, it may have limited wildlife value. The habitat, when it occurs as a wetland, is regulated under Section 404 of the CWA and by the state, and considered sensitive by the City and County of San Diego, because it is wetland habitat.

Disturbed Wetland

This vegetation community is dominated by exotic wetland species within areas that have experienced prior, periodic disturbances. Characteristic species include cocklebur, curly dock (*Rumex crispus*), broom baccharis (*Baccharis sarothroides*), rye grass (*Lolium* sp.), beard grass (*Polypogon monspeliensis*), and tamarisk. The habitat type is located within the canyons and manufactured drainage areas of the Study Corridor. Disturbed wetland is regulated under Section 404 of the CWA and by the state, and given protective status by the City and County of San Diego due to the fact that all wetlands are declining in extent. Approximately 2.94 hectares (7.26 acres) of disturbed wetland occurs in the Study Corridor in the vicinities of the main trunk of Spring Canyon, a manufactured channel south of St. Andrews Avenue, and northwest of La Media and Airway roads.

3.8.1.2 Upland Habitats

Maritime Succulent Scrub (including disturbed)

Maritime succulent scrub is a highly drought-adapted plant community of sub-shrubs and succulents that occurs on shallow soils on dry slopes and mesas. The understory is usually spare and sometimes rocky. Species associated with maritime succulent scrub within the Study Corridor include cliff spurge (*Euphorbia misera*), San Diego bur-sage (*Ambrosia chenopodiifolia*), golden-spined cereus (*Bergerocactus emoryi*), prickly-pear and cholla cacti (*Opuntia* sp.), jojoba (*Simmondsia chinensis*), and San Diego barrel cactus (*Ferocactus viridescens*). Maritime succulent scrub also contains Diegan coastal sage scrub species, such as California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). Disturbed maritime succulent scrub contains evidence of disturbance such as dumping, past clearing, or weed invasion. Such communities typically have a lower cover of shrub species and a higher percentage of non-native herbaceous species. Maritime succulent scrub reaches its northern distribution limit in southern California and is more commonly found in Baja California, where it becomes a common shrub community. An estimated 10.8 hectares (26.6 acres) of maritime succulent scrub exists within the Study Corridor, of which 0.8 hectare (1.9 acres) is disturbed. The habitat type is primarily located in the Spring Canyon portion of the Study Corridor. The OCCS Preserve contains approximately 3.2 hectares (7.8 acres) of maritime succulent scrub. This vegetation community is considered sensitive by several agencies, including the CDFG, City of San Diego, and County of San Diego.

Diegan Coastal Sage Scrub (including disturbed)

Diegan coastal sage scrub occurs in similar situations as maritime succulent scrub, but has subshrubs that are slightly less adapted to drought and generally a more vigorous understory. The habitat type occurs along the coastal slopes of San Diego and southern Orange counties and is a subset of the more widely distributed coastal sage scrub scrubtype. Diegan coastal sage scrub is located within Spring Canyon, as well as along existing Route 905 in the western portion of the Study Corridor. Dominant shrub species vary throughout the habitat's range, depending on slope, aspect, soil type, and coastal proximity. Diegan coastal sage scrub species found within the Study Corridor include California sagebrush, California buckwheat, lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), San Diego sunflower (*Viguiera laciniata*), San Diego barrel cactus, and bladderpod (*Isomeris arborea*). The open shrub structure of this vegetation type typically allows for a relatively abundant herbaceous layer.

Disturbed coastal sage scrub communities show evidence of disturbance, such as dumping, past clearing, or weed invasion. Such communities typically have a lower cover of shrub species and a higher percentage of non-native herbaceous species. An estimated 25.3 hectares (62.8 acres) of Diegan coastal sage scrub exists within the Study Corridor, of which 11.6 hectares (28.8 acres) are disturbed. Coastal sage scrub is considered a sensitive habitat by several agencies, including the CDFG, City of San Diego, and County of San Diego.

Diegan Coastal Sage Scrub/Non-native Grassland

Diegan coastal sage scrub/non-native grassland is an ecotone, where neither plant community is more dominant than the other. The occurrence of this plant assemblage is quite limited within the Study Corridor, restricted to areas along the existing portions of Route 905 and the Route 905/I-805 interchange. An estimated 1.8 hectares (4.5 acres) of Diegan coastal sage scrub/non-

native grassland exists within the Study Corridor. Due to its affiliation with Diegan coastal sage scrub, this community is considered a sensitive habitat by several agencies, including the CDFG, City of San Diego, and County of San Diego.

Coastal Scrub

Coastal scrub in the Study Corridor is comprised of shrubs that tolerate highly alkaline conditions. Saltbush (*Atriplex canescens*) is the dominant plant species found in this community. Other species observed include Australian saltbush (*Atriplex semibacatta*), non-native grasses and forbs, or simply bare soil. Within the Study Corridor, this habitat is limited to three small patches south of Gateway Park Drive, totaling 0.1 hectare (0.3 acre). Coastal scrub is not specifically listed as sensitive by any federal, state, or local agencies, nor defined by the MSCP; however, as an unusual type of Diegan coastal sage scrub, it would likely be regarded as having the same sensitivity rating.

Non-native Grassland

Non-native grasslands are characterized by a dense to sparse cover of annual grasses that are often associated with numerous species of showy-flowered native annual forbs. The grasslands occur on gradual slopes with deep, fine-textured soils. The City of San Diego guidelines also include non-native forbs, such as filaree (*Erodium* spp.), tocalote (*Centaurea melitensis*), mustard (*Brassica* spp.), and others as major elements of non-native grasslands. Characteristic species in the Study Corridor include oats (*Avena* spp.), foxtail chess (*Bromus madritensis* ssp. *rubens*), ripgut grass (*B. diandrus*), and green-stem filaree (*Erodium moschatum*), and mustard. Although less sensitive than native grasslands, non-native grasslands can provide habitat for many plant and animal species. The vegetation community is also valuable as foraging habitat for sensitive raptor species, and nesting sites for the northern harrier (*Circus cyaneus*) and burrowing owl (*Athene cunicularia*). Non-native grasslands are concentrated in the central portion of the Study Corridor and likely represent areas that have been previously disturbed, most likely for agricultural purposes, but have not been disturbed in recent years. The City and County of San Diego consider the habitat to be sensitive due to potential use by raptor species. There are 98.5 hectares (243.5 acres) of non-native grassland within the Study Corridor, including less than 0.05 hectare (less than 0.05 acre) within the OCCS Preserve.

Non-native Grassland/Disturbed Habitat

Large tracts within the Study Corridor were historically farmed and mapped as "agriculture" during vegetation surveys conducted between 1994 and 1998. Farming has been discontinued in most of these areas, with some of them allowed to go fallow and others periodically disked. The fallow lands, and some locations disturbed by recent construction, are a mixture of non-native grassland and ruderal species. A total of 84.3 hectares (208.4 acres) of non-native grassland/disturbed habitat exists within the Study Corridor. This total includes approximately 38.6 hectares (95.4 acres) of non-native grassland and 45.7 hectares (113.0 acres) of disturbed habitat.

Non-native Vegetation

Non-native vegetation includes areas of landscaped shrubs/trees associated with portions of Route 905 and the Route 905/I-805 interchange and sparse areas in the eastern portion of the

Study Corridor. A total of 7.4 hectares (18.4 acres) of non-native vegetation exists within the Study Corridor.

Eucalyptus Woodland

Eucalyptus woodland is dominated by any combination of eucalyptus trees (*Eucalyptus* sp.). These introduced species are drought tolerant and capable of producing a large amount of toxic leaf and bark litter. The Study Corridor contains 2.5 hectares (6.1 acres) of this habitat type. Eucalyptus woodlands occur in the West Segment of the Study Corridor along both sides of existing Route 905 and the east side of I-805, as well as west of Cactus Road. In addition, a few eucalyptus individuals have been mapped on the north side of OMR. Although eucalyptus trees are present elsewhere in the Study Corridor, they are typically associated with developed areas and were included within units mapped as developed. The habitat is generally not considered sensitive, but eucalyptus are one of many trees that can support roosting/nesting raptors.

Agriculture

Agriculture lands includes areas that have been cultivated for the expressed purpose of farming or ranching. In the Study Corridor, there is a single block of agriculture west of Enrico Fermi Drive, consisting of disked lands totaling 21.1 hectares (52.1 acres).

Disturbed Habitat

Disturbed habitat primarily includes bare soil areas, such as those along dirt roads/trails or sites dominated by exotic broad-leaf species adapted to a regime of frequent disturbance. Many of the characteristic species of the community can also occur in grasslands, such as mustard, tocalote, fennel (*Foeniculum vulgare*), and Russian thistle (*Salsola tragus*). Disturbed habitat in the Study Corridor also includes areas recently cleared of vegetation. The habitat type occurs on 211.1 hectares (521.7 acres) of the Study Corridor, particularly in locations with little or no topography, and is not considered sensitive by any federal, state, or local agencies. The OCCS Preserve contains less than 0.05 hectare (0.1 acre) of disturbed habitat.

Developed Area

Developed areas include all manufactured structures, such as paved roads, commercial and industrial buildings, residences, landscaped areas, storage yards, riprap sites, and Brown Field Airport. The Study Corridor contains 264.5 hectares (653.5 acres) of developed areas. The habitat type is not sensitive from a biological resources standpoint. Developed areas dominate the eastern end of the project corridor near the border crossing, the central portion of the Study Corridor adjacent to Brown Field Airport, and the landscaped areas associated with I-805 and the Route 905/I-805 interchange.

Linne Soil Series

An analysis of the Linne Soil Series within the Study Corridor was completed as part of the 2002 rare plant survey. The Linne Soil Series in coastal southern California is known to support coastal sage scrub, maritime succulent scrub, and nonnative grassland with patches of open soil and underlying clay. Several unique native annual and perennial species, such as milk-vetch (*Astragalus nuttallianus*), desert bedstraw (*Galium proliferum*), filaree (*Erodium texanum*), and fagonia (*Fagonia laevis*) are specifically tied to the soil series in southern San Diego County,

including the Horseshoe Bend area and the Wall-Hudson property near Dennery Canyon. These plants are mostly desert dwelling species that are also found in northern Baja California, Mexico, and most likely relict in nature.

Approximately 1,682 hectares (4,156 acres) of the Linne Soil Series occurs in Otay Mesa, of which approximately 188 hectares (465 acres) exists in the southern Otay Mesa region, including the area east of I-805, south of the Otay River, and north of the United States and Mexico border. Overall, an estimated 12.4 hectares (30.8 acres) of the Linne Soil Series was identified within the Route 905 Study Corridor (Table 3-4). Developed areas with underlying Linne soils are not included in the acreage calculations due to their loss as functioning habitat.

Table 3-4
VEGETATION COMMUNITIES OCCURRING ON LINNE
SOIL SERIES IN THE ROUTE 905 STUDY CORRIDOR

VEGETATION COMMUNITY	HECTARE(S) (ACRE[S]) OCCURRING IN LINNE SOIL SERIES
Vernal pools	--
Road pools (with fairy shrimp)	--
Seasonal pond	--
Freshwater marsh	--
Southern willow scrub	<0.1 (<0.1)
Southern willow scrub - disturbed	--
Mule fat scrub	--
Mule fat scrub - disturbed	--
Tamarisk scrub	--
Disturbed wetland	--
Maritime succulent scrub	--
Maritime succulent scrub - disturbed	--
Diegan coastal sage scrub	0.1 (0.3)
Diegan coastal sage scrub - disturbed	0.6 (1.6)
Diegan coastal sage scrub/Non-native grassland	1.2 (2.9)
Coastal scrub	--
Non-native grassland	6.3 (15.5)
Non-native grassland/Disturbed habitat	--
Non-native vegetation	2.9 (7.1)
Eucalyptus woodland	0.6 (1.6)
Agriculture	--
Disturbed habitat	0.7 (1.8)
TOTAL	12.4 (30.8)

In the project vicinity, southern willow scrub, Diegan coastal sage scrub (including disturbed), non-native grassland, and Diegan coastal sage scrub/non-native grassland occur on the soil series in addition to several other disturbance-related vegetation communities (e.g., non-native vegetation, eucalyptus woodland, disturbed habitat). The majority of the Linne Soil Series in the Study Corridor was associated with non-native grassland and other non-native communities. No

sensitive annual species could be located or identified on this substrate during the 2002 or 2003 rare plant surveys. Other areas supporting the Linne Soil Series were also assessed, including the Wall-Hudson property where several, unique annual plants had been observed during past surveys. However, no sensitive species were found on any of the Linne Soil Series in the Study Corridor.

3.8.1.3 Jurisdictional Habitats

Areas under ACOE jurisdiction occur in eight drainages within the Study Corridor (Figures 4-15A and 4-15B). ACOE regulated wetlands include southern willow scrub (1.02 hectares [2.51 acres]), mule fat scrub–disturbed (0.19 hectare [0.48 acre]), freshwater marsh (0.68 hectare [1.69 acres]), tamarisk scrub (0.64 hectare [1.58 acres]), and disturbed wetlands (1.17 hectares [2.90 acres]), for a total of 3.70 hectares (9.16 acres). Other ACOE jurisdictional areas include seasonal ponds (0.28 hectare [0.71 acre]), disturbed wetland (1.68 hectares [4.16 acres]), and ephemeral and intermittent streams in the canyon bottoms (1.15 hectares [2.85 acres]), for a total of 3.12 hectares (7.72 acres) (Table 3-5).

Table 3-5
ACOE JURISDCITIONAL AREAS WITHIN THE ROUTE 905 STUDY CORRIDOR BY DRAINAGE

Drainage	Wetlands*						Other ACOE [†]	TOTAL**
	Freshwater Marsh	Southern Willow Scrub	Mule Fat Scrub – Disturbed	Tamarisk Scrub	Disturbed Wetlands	Wetlands Total**		
1							0.01/0.02	0.01/0.02
2					0.02/0.05	0.02/0.05	0.07/0.18	0.09/0.23
3	0.05/0.13	0.02/0.06				0.07/0.19	0.01/0.02	0.08/0.21
4	0.14/0.35	0.23/0.56				0.37/0.91	0.04/0.10	0.41/1.01
5	0.10/0.24	0.23/0.57				0.33/0.81	0.24/0.60	0.57/1.41
6				0.64/1.58	0.02/0.06	0.66/1.64	0.01/0.02	0.67/1.66
7	0.39/0.97	0.25/0.61			1.06/2.61	1.70/4.19	1.65/4.07	3.35/8.26
8		0.29/0.71	0.19/0.48		0.07/0.18	0.55/1.37	1.10/2.71	1.65/4.08
TOTAL**	0.68/1.69	1.02/2.51	0.19/0.48	0.64/1.58	1.17/2.90	3.70/9.16	3.12/7.72	6.83/16.88

*All measurements are in hectares/acres.

**Hectare totals are calculated from acre totals to minimize rounding errors.

[†]Includes linear streambeds, seasonal ponds, and disturbed wetlands.

Wetlands under CDFG jurisdiction occur in the same eight drainages containing the ACOE regulated habitat, but are larger in extent, in some cases, due to State definitions (Figures 4-15A and 4-15B). The CDFG jurisdictional areas within the Study Corridor include freshwater marsh (0.68 hectare [1.69 acres]), southern willow scrub (1.93 hectares [4.76 acres]), tamarisk scrub

(0.64 hectare [1.58 acres]), mule fat scrub (0.71 hectare [1.75 acres]), mule fat scrub–disturbed (0.20 hectare [0.49 acre]), and disturbed wetlands (2.90 hectares [7.19 acres]). In addition to vegetated communities, CDFG also regulates the following unvegetated habitat: streambeds in the canyon bottoms (1.15 hectare [2.84 acres]), seasonal ponds (0.58 hectare [1.43 acres]), disturbed habitat (0.19 hectare [0.47 acre]), and developed areas (0.09 hectare [0.22 acre]). Total CDFG jurisdiction within the Study Corridor is 9.07 hectares (22.42 acres) (Table 3-6).

Table 3-6
CDFG JURISDCITIONAL AREAS WITHIN THE ROUTE 905 STUDY CORRIDOR

Drainage	Wetlands*						Streambed ^{††}	TOTAL**
	Freshwater Marsh	Southern Willow Scrub	Mule Fat Scrub [†]	Tamarisk Scrub	Disturbed Wetlands	Wetlands Total**		
1		0.02/0.04				0.02/0.04	0.01/0.02	0.02/0.06
2					0.02/0.05	0.02/0.05	0.07/0.18	0.09/0.23
3	0.05/0.13	0.02/0.06				0.07/0.19	0.29/0.71‡	0.37/0.90
4	0.14/0.35	0.23/0.56	0.04/0.09			0.41/1.00	0.04/0.10	0.45/1.10
5	0.10/0.24	0.35/0.86	0.10/0.24			0.55/1.34	0.54/1.32	1.08/2.66
6		0.09/0.23		0.64/1.58	0.02/0.06	0.75/1.87	0.01/0.02	0.76/1.89
7	0.39/0.97	0.93/2.30	0.02/0.05		2.75/6.79	4.09/10.11	§ (39 m ²)/0.01	4.10/10.12
8		0.29/0.71	0.75/1.86		0.11/0.29	1.15/2.86	1.05/2.60⌘	2.20/5.46
TOTAL**	0.68/1.69	1.93/4.76	0.91/2.24	0.64/1.58	2.90/7.19	7.06/17.46	2.01/4.96	9.07/22.42

*All measurements are in hectares/acres, unless otherwise stated.

**Hectare totals are calculated from acre totals to minimize rounding errors.

[†]Includes disturbed phases of mule fat scrub.

^{††}Includes linear streambeds, seasonal ponds, and a manmade drainage feature within Drainage 8.

‡Includes 0.09 hectares (0.22 acres) of developed area and 0.19 hectares (0.47 acres) of disturbed habitat. Both exist in an abandoned farm pond at the head of a canyon.

⌘Includes 0.06 hectares (0.16 acres) of seasonal pond.

§Less than 0.005.

3.8.2 Sensitive Plants and Wildlife

Sensitive plant and/or animal species are those that are considered rare, threatened, or endangered within the state or region by local, state, or federal resource agencies. These agencies include the USFWS, CDFG, and/or local conservation organizations. Under state law, plant species may be designated rare, threatened, or endangered by the CDFG. Plants can also be listed as endangered, threatened, proposed, or candidate species under the federal Endangered Species Act, which is administered by the USFWS. The California Native Plant Society (CNPS) listing serves as the candidate list for the State of California. Sensitive species can also include California Species of Special Concern, which are identified within a watch list created and

maintained by the CDFG. This list/designation was created in response to declining population levels, limited ranges, and/or continuing threats to species that have made them vulnerable to extinction.

The goal of the designation is to maintain viable populations of all native vertebrate species, and reverse their decline. Not all California Species of Special Concern have declined equally, and the designation presents efforts to address the appropriate issues of concern early enough to secure the species long-term viability.

Within the study area, there is a large amount of disturbed land and a history of previous and ongoing human disturbance from agriculture and urban development. A total of one-third of the identified plant species are non-native. These include a number of disturbance-related upland (e.g., tocalote yellow star thistle, *Centaurea melitensis*) and wetland plant species (e.g., tamarisk, *Tamarix* sp.).

Sensitive Plant Species

Sensitive plant species are shown on Figures 4-13A and 4-13B. A total of approximately 150 plant species were detected in the Study Corridor. The coastal sage scrub vegetation community supports the greatest diversity of species, with approximately one-half of all plants observed in this vegetation community. A full list of plant species observed within the Study Corridor is included in Appendix D of the 1999 Biological Technical Report.

The results of the 2002 and 2003 rare plant surveys for Route 905 are depicted on Figures 4-13A and 4-13B and described below. Due to the low rainfall preceding the 2002 surveys, field results were limited for annual species, so supplemental plant surveys were performed in June 2003. Annual plant data from surveys conducted between 1994 and 1998 were included on the maps to provide a complete review of species presence.

The following 17 sensitive plant species were detected within the Route 905 Study Corridor: Otay Mesa mint, California Orcutt grass (*Orcuttia californica*), San Diego button-celery, Otay tarplant, spreading navarretia, variegated dudleya (*Dudleya variegata*), Orcutt's bird's-beak (*Cordylanthus orcuttianus*), San Diego bur-sage (*Ambrosia chenopodiifolia*), cliff spurge, San Diego barrel cactus, little mousetail, San Diego County needle grass (*Achnatherum diegoense*), western dichondra (*Dichondra occidentalis*), southwestern spiny rush (*Juncus acutus* spp. *leopoldii*), San Diego sunflower, seaside calandrinia (*Calandrinia maritima*), ashy spike-moss (*Selaginella cinerascens*), and fagonia (*Fagonia laevis*). Although ashy spike-moss is no longer considered sensitive, it was formerly rated as a CNPS List 4 species. Because of the plant's prior sensitivity and significance with respect to native habitat restoration (e.g., Quino checkerspot butterfly), the species was incorporated into the annual plant surveys. In addition, fagonia is not regarded as sensitive by the CNPS or state or federal agencies, but was included in field efforts due to the species' association with the Linne Soil Series and its rarity outside desert climates. Of the remaining sensitive plants, Otay Mesa mint, California Orcutt grass, San Diego button-celery, Otay tarplant, and spreading navarretia are the only species that are listed by the federal/state government as endangered or threatened. The status of all sensitive species (those specifically designated by the federal or state resource agencies) is discussed below. Explanations of the CDFG and USFWS designations are included in Appendix O.

Otay Mesa Mint (Pogogyne nudiuscula)

Listing: USFWS Endangered; CDFG Endangered; CNPS List 1B, R-E-D 3-3-2

Distribution: Occurs in southwestern San Diego County and Baja California, Mexico.

Habitat(s): Vernal pools.

Status On Site: A large population of the species (630+ individuals) was detected prior to 1999 in the largest vernal pool near Spring Canyon in close proximity to populations of both spreading navarretia and Otay tarplant. In 2001, over 50 pools in the OCCS Preserve contained Otay Mesa mint. The species was not observed in the rare plant study area in 2002, although several thousand were found flowering in a nearby restoration site that same year. During the 2003 plant survey, an estimated 23 individuals were relocated within pool 66 to the west of Heritage Road.

California Orcutt Grass (Orcuttia californica)

Listing: USFWS Endangered; CDFG Endangered; CNPS List 1B, R-E-D 2-3-3

Distribution: Riverside and San Diego counties and Baja California. California Orcutt grass is known historically from several “J” series vernal pools on Otay Mesa, a few sites near Miramar and Clairemont Mesa, and southern Riverside County.

Habitat(s): Vernal pools.

Status On Site: Two stands were detected in the OCCS Preserve in previous years and surveys reported the occurrence of the plant in at least five vernal pools in 2001. However, the species was not detected during either the 2002 or 2003 rare plant surveys within the Study Corridor.

San Diego Button-celery (Eryngium aristulatum var. parishii)

Listing: USFWS Endangered; CDFG Endangered; CNPS List 1B, R-E-D 2-3-2

Distribution: Known from San Diego and Riverside counties, and from Baja California, Mexico. In the U. S., the species is apparently confined to the Santa Rosa Mesa and mesas around San Diego. Reported localities within the County of San Diego include San Marcos, Miramar Naval Air Station, Clairemont Mesa, College Park, east San Diego, and Otay Mesa. Historically, the species occurred in many vernal pool systems throughout San Diego County and on the Santa Rosa Plateau in Riverside County.

Habitat(s): Restricted to vernal pools and marshes.

Status On Site: Prior to 1999, the largest concentration of the species was recorded near the intersection of La Media and Airway roads. This area specifically serves as a preserve for the San Diego button-celery. Approximately 284 individuals were counted at the site during 2002 rare plant surveys. In 1999, the species was also found in a pool within the OCCS, and recorded in a complex north of OMR and just east of Dennery Canyon. Over 50 of the vernal pools within the OCCS Preserve contained San Diego button-celery in spring 2001. The following year, approximately 12 plants were anecdotally observed in a pool located immediately south of the fenced site. The species was also seen flowering on April 18, 2002 in a nearby vernal pool restoration site near the Route 905 Study Corridor. During rare plant surveys in 2003, an estimated 5,236 individuals were found within the Study Corridor. Of that number, 15 button-celery were recorded on the mesa top west of Heritage Road. The remaining 5,221 plants were confirmed within the preserve near La Media Road, with the Route 905 boundaries lying immediately north of the preserve.

Otay Tarplant (Deinandra conjugens)

Listing: USFWS Threatened; CDFG Endangered; CNPS List 1B, R-E-D 3-3-2

Distribution: Occurs only in southern San Diego County and northwestern Baja California, Mexico. Within San Diego County, Otay tarplant is found in scattered localities from the

vicinity of Sweetwater Reservoir south to the border, with the species equally uncommon in Mexico.

Habitat(s): Clay soils and in swales.

Status On Site: One population, containing 700+ individuals, was detected prior to 1999 within a vernal pool west of Spring Canyon. In 2002, no individuals of Otay tarplant were observed within the rare plant study area. In the subsequent year, approximately 1,331,676 plants were located south of the proposed alignment and west of Old Otay Mesa Road, and an additional 16,605 tarplant were reconfirmed in pool 66.

Spreading Navarretia (*Navarretia fossalis*)

Listing: USFWS Threatened; CNPS List 1B, R-E-D 2-3-2

Distribution: Some of the reported spreading navarretia localities in San Diego County include Otay Mesa, Camp Pendleton, Del Mar Mesa, and San Marcos.

Habitat(s): Vernal pools and vernal swales.

Status On Site: Prior to 1999, the species was located in two pools within the OCCS Preserve and in the largest vernal pool on site near Spring Canyon. Within this pool, approximately 30 individuals of spreading navarretia were detected during past surveys. Spreading navarretia was not observed in the rare plant study area in 2002; however, 21 of the vernal pools within the OCCS Preserve contained the species in spring 2001. As part of the plant survey conducted the following year, approximately 129 individuals were relocated within one pool.

Variegated Dudleya (*Dudleya variegata*)

Listing: CNPS List 1B, R-E-D 2-2-2

Distribution: Restricted in distribution to southern San Diego County and northwestern Baja California, Mexico. In San Diego, the species has been reported from La Jolla Canyon, Santa Maria Mountain, Kearny Mesa, Dictionary Hill, San Miguel Mountain, El Cajon, La Mesa, Fletcher Hills, Paradise Hills, Rice Canyon, Dehesa, Otay Mountain, Imperial Beach, and the Otay Border Crossing.

Habitat(s): Chaparral, cismontane woodland, coastal scrub, valley and foothill grasslands, and vernal pools.

Status On Site: Prior to 1999, two populations estimated at 5,350 individuals and 60 individuals existed near the intersection of La Media and Airway roads. Due to recent hydrologic changes in that area, the extent of the largest variegated dudleya population may have been reduced and the status of the remaining smaller population is unknown. The species was not observed in the rare plant study area in 2002, but the following year, approximately 1,055 individuals were located largely west of Old Otay Mesa Road.

Orcutt's Bird's-beak (*Cordylanthus orcuttianus*)

Listing: CNPS List 2, R-E-D 3-3-1

Distribution: Limited coastal distribution in extreme southern San Diego County and Baja California, Mexico; Rice Canyon, Tijuana Hills, Otay Mesa, and Otay Valley at I-805.

Habitat(s): Coastal sage scrub.

Status On Site: One population containing an estimated 196 individuals was observed prior to 1999 in the canyon that runs parallel to existing Route 905 between OMR and I-805.

Additionally, smaller populations were observed in the western arm of Spring Canyon, south of the current Study Corridor. Orcutt's bird's-beak was not observed in the rare plant study area in 2002. During surveys in 2003, approximately 66 individuals were located within the Study Corridor and another 22 were found outside, and to the southwest, of the survey boundaries.

San Diego Bur-sage (*Ambrosia chenopodiifolia*)

Listing: CNPS List 2, R-E-D 3-3-1

Distribution: Found below 183 meters (600 feet) in elevation in southwestern San Diego County, Arizona, and Mexico. In San Diego County, the species is common on mesas and open slopes in Otay Mesa, Chula Vista, and San Ysidro.

Habitat(s): Coastal sage scrub on dry, sunny hillsides.

Status On Site: In 2002, San Diego bur-sage was located along Route 905 between I-805 and OMR, and west of Heritage Road within the rare plant study area. Based on survey data collected over the past several years, it has been estimated that over 300 individuals are present in appropriate habitat within the Study Corridor. However, no plants were observed during subsequent field efforts conducted in 2003.

Cliff Spurge (*Euphorbia misera*)

Listing: CNPS List 2, R-E-D 2-2-1

Distribution: Coastal range from Corona Del Mar to Baja California, Mexico. In San Diego County, the cliff spurge is known from Carlsbad, Point Loma, San Diego, Sweetwater Valley, and Otay Mesa, and also occurs across the border in the Tijuana Hills.

Habitat(s): Rocky soils in coastal sage scrub and coastal bluff scrub.

Status On Site: Cliff spurge was located during the 2002 survey effort in the West and Middle segments of the rare plant study area. Based on counts conducted over the last few years, it is estimated that more than 950 individuals are present in habitat supporting the species within Spring Canyon.

San Diego Barrel Cactus (*Ferocactus viridescens*)

Listing: CNPS List 2, R-E-D 1-3-1

Distribution: Restricted to San Diego County and Baja California, Mexico. Reported localities in San Diego County include the San Luis Rey River in Oceanside, Del Mar, Poway, Kearny Mesa, Rose Canyon, National City, Point Loma, Casa de Oro, Sunnyside, Otay Mesa, and the International Boundary Monument.

Habitat(s): Dry slopes in coastal sage scrub.

Status On Site: San Diego barrel cactus was located primarily in the middle portion of the rare plant study area. Based on counts conducted over the past several years, it is estimated that more than 600 individuals are present in habitat supporting the species within the Study Corridor.

Little Mousetail (*Myosurus minimus* ssp. *apus*)

Listing: CNPS List 3, R-E-D 2-3-2

Distribution: Vernal pool habitat in coastal San Diego County and elsewhere north to Butte County, California. In San Diego County, known sites include Del Mar Mesa, Otay Mesa, Camp Pendleton, Tierrasanta, and Ramona.

Habitat(s): Vernal pools.

Status On Site: Prior to 1999, little mousetail was recorded in one pool just east of Spring Canyon's largest tributary canyon. By 2002, the pool supporting the species had been destroyed and the plant was no longer expected to be present. Little mousetail was not observed in the rare plant study area in 2002, but, during the following year, an estimated 286 individuals were located within one vernal pool and six recorded in another vernal pool.

San Diego County Needle Grass (*Achnatherum diegoense*)

Listing: CNPS List 4, R-E-D 1-2-1

Distribution: Previously known only from the mainland, but now also found on the Channel Islands. In San Diego County, the species has been recorded at Proctor Valley, Jamul Mountain, McGinty Mountain, near Lee Valley, and Otay Mountain.

Habitat(s): Often found in mesic areas in chaparral and coastal sage scrub and on clay slopes.

Status On Site: San Diego County needle grass was located in the West and Middle segments of the rare plant study area. Based on counts conducted over the past several years, it is estimated that more than 1,070 individuals are present in habitat supporting the species within the Study Corridor.

Western Dichondra (*Dichondra occidentalis*)

Listing: CNPS List 4, R-E-D 1-2-1

Distribution: Found from Santa Barbara County to Baja California, Mexico, and on San Miguel Island. In San Diego County, the species occurs north to Agua Hedionda and La Costa and south to the border.

Habitat(s): Dry, sandy banks in coastal sage scrub, chaparral, or southern oak woodland, and often proliferates on recently burned slopes.

Status On Site: Prior to 1999, small stands of western dichondra were observed near the rim of several canyons to the south of Route 905/OMR in the Study Corridor. In 2002, the species was not documented in the rare plant study area during the spring surveys. During field efforts conducted in 2003, an estimated 99 individuals were observed in the survey area, with 59 of the plants falling within the footprint of the proposed project (west of Old Otay Mesa Road).

Southwestern Spiny Rush (*Juncus acutus* spp. *leopoldii*)

Listing: List 4, R-E-D 1-2-1

Distribution: Known from coastal counties from San Luis Obispo to San Diego, and Baja California, Mexico.

Habitat(s): Coastal dunes (mesic), meadows and seeps (alkaline seeps), and marshes and swamps (coastal salt).

Status On Site: Prior to 1999, a small stand of southwestern spiny rush was observed in the northeastern arm of Spring Canyon to the east of Heritage Road. The rare plant survey area, which did not include the previously documented population, was not found to contain any individuals of the species in either 2002 or 2003.

San Diego Sunflower (*Viguiera laciniata*)

Listing: CNPS List 4, R-E-D 1-2-1

Distribution: Known from southern coastal and foothill San Diego County, and Baja California, Mexico. Reported localities in San Diego County include San Onofre, Bonsall, Mission Hills, Mission Valley, Spring Valley, La Mesa, and Otay Lakes.

Habitat(s): Co-dominant within the southern coastal sage scrub, generally occurring on dry slopes.

Status On Site: Within the 2002 plant survey area, the San Diego sunflower was found within the West and Middle segments, with more than 1,214 individuals observed in habitat supporting the species.

Seaside calandrinia (*Calandrinia maritima*)

Listing: CNPS List 4, R-E-D 1-2-1

Distribution: In San Diego County, the species occurs uncommonly below 100 meters (300 feet) in elevation from Leucadia to the Tijuana Hills.

Habitat(s): Sandy places and sea bluffs.

Status On Site: In 2003, an estimated 20,429 calandrinia were located in the Study Corridor, with two populations occurring north of Route 905 and the remainder concentrated on the south facing slopes of Spring Canyon. Overall, 3,372 individuals were recorded within the footprint of the North Alignment; 4,279 were found within the proposed Central Alignment; and 3,639 were observed in the South Alignment.

Ashy Spike-moss (*Selaginella cinerascens*)

Listing: CNPS - None, considered, but rejected, too common.

Distribution: Occurs in northern and southern San Diego County and Baja California, Mexico.

Habitat(s): Flat mesas and slightly sloping hillsides below 300 meters (985 feet) in elevation.

Status On Site: In 2002, ashy spike moss was located both within the West and Middle segments of the rare plant study area. An estimate of population size, however, could not be assessed, as individual plants cannot be reasonably counted.

Fagonia (*Fagonia laevis*)

Listing: CNPS – None

Distribution: Occurs in desert communities in eastern San Diego and Imperial counties, and parts of Mexico.

Habitat(s): Found below 700 meters (2,100 feet) in elevation. The species is a member of a suite of plants that are edaphically associated with the Linne Soil Series in southern San Diego County. Fagonia is very uncommon outside the desert climate of San Diego County; most likely being relictual in nature.

Status On Site: During the 2003 rare plant surveys, approximately 31 individuals were found in the Study Corridor on soils that were mapped as supporting Olivenhain Cobbly Loam, with inclusions of Linne Clay Soil. All the plants were located within Spring Canyon, and west of Heritage Road, in an area lying south of the proposed Route 905.

Other plant species potentially occur in the area, but were not observed in 2002 or 2003. These species are listed in Appendix P, along with their potential to occur and selected natural history facets.

Sensitive Animal Species

The following 18 sensitive animal species were documented during surveys of the Study Corridor: Riverside fairy shrimp, San Diego fairy shrimp, coastal California gnatcatcher, golden eagle (*Aquila chrysaetos*), burrowing owl, California horned lark (*Eremophila alpestris actia*), Cooper's hawk (*Accipiter cooperii*), loggerhead shrike (*Lanius ludovicianus*), northern harrier, orange-throated whiptail, San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), bobcat (*Lynx rufus*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), western spadefoot, yellow-breasted chat (*Icteria virens*), black-crowned night heron (*Nycticorax nycticorax*), great egret (*Ardea alba*), and white-tailed kite (*Elanus leucurus*). In addition to the above, red-tailed hawks were also observed and are mentioned here due to their general sensitivity. Because of the low rainfall during the 2001-2002 wet season for fairy shrimp surveys, all the mapping incorporates historical data regarding fairy shrimp locations confirmed between 1994 and 1998. Historical sightings were deleted wherever habitat was clearly missing due to development or grading.

Mapped observations of the following sensitive wildlife species were made within the OCCS Preserve: San Diego fairy shrimp, Riverside fairy shrimp, coastal California gnatcatcher, Cooper's hawk, Coronado Island skink (*Eumeces interparietalis skiltonianus*), loggerhead shrike, northern harrier, northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Quino checkerspot butterfly, San Diego black-tailed jackrabbit, burrowing owl, and white-tailed kite.

Following is a brief description of each of the sensitive species observed during the 2001-2002 surveys, as well as species previously recorded and assumed to still occur within the Study Corridor. Of these, the Riverside fairy shrimp, San Diego fairy shrimp, Quino checkerspot butterfly, and coastal California gnatcatcher are the only species that are listed by the federal government as endangered or threatened. The status of all sensitive species (those specifically designated by the federal or state resource agencies) is discussed below.

Riverside Fairy Shrimp (*Streptocephalus woottoni*)

Listing: USFWS Endangered

Distribution: Riverside, Orange, and San Diego counties, as well as northern Baja California, Mexico.

Habitat(s): Vernal pools and other ephemeral pools.

Status On Site: Prior to 1999, the species was observed in three vernal pools, including two pools within the OCCS Preserve and one pool on the mesa between two arms of Spring Canyon, with the latter location now existing outside the Study Corridor. In 2002, Riverside fairy shrimp were confirmed in five vernal pools, three of which are situated near Spring Canyon. The remaining two pools are located to the west near Caliente Boulevard, and the intersection of OMR and Airway Road. In addition, 20 vernal pools within the OCCS Preserve were found to support Riverside fairy shrimp.

San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)

Listing: USFWS Endangered

Distribution: Throughout San Diego County.

Habitat(s): Vernal pools, ditches, and other temporary pools.

Status On Site: Prior to 1999, San Diego fairy shrimp were found in 11 vernal pools and four road pools, with six of these located in the OCCS Preserve. Of the rest, two are now outside the Study Corridor and seven have been destroyed by development or disturbance. In 2002, San Diego fairy shrimp were observed within six vernal pools and four road pools. In addition, 27 vernal pools within the OCCS Preserve were documented as supporting San Diego fairy shrimp.

Quino Checkerspot Butterfly (*Euphydryas editha quino*)

Listing: USFWS Endangered

Distribution: Fifty years ago, the Quino checkerspot butterfly was described as one of the most common butterflies in the San Diego County. Currently, populations are known to exist only as several, probably isolated, colonies in southwestern Riverside County, southern San Diego County, and northern Baja California, Mexico.

Habitat(s): In San Diego, the principal larval host plant of the species is the dot-seed plantain (*Plantago erecta*). Potential habitat for the Quino checkerspot butterfly includes vegetation communities with relatively open areas that typically include patches of dot-seed plantain, owl's clover (*Castilleja exserta*), and nectaring plants. These habitats include vernal pools, lake margins, non-native grassland, perennial grasslands, disturbed habitat, disturbed wetlands, and open areas within shrub communities.

Status On Site: Focused surveys were conducted for the Quino checkerspot butterfly within the

Route 905 Study Corridor in 1997, prior to the adoption of a survey protocol. Updated surveys based on the protocol were conducted in 1998 and 1999. The results of the surveys were negative for the entire Study Corridor, although suitable larval host plants and nectar sources were present. Department surveys in 2002 and 2003 were negative, as well. Although none of the project surveys detected Quino checkerspot butterfly, the Department was appraised of one sighting of a female Quino checkerspot butterfly in 2001, within the OCCS Preserve. During that year, appropriate host plants and nectar sources existed along the canyon rims within the Study Corridor.

Coastal California Gnatcatcher (*Polioptila californica californica*)

Listing: USFWS Threatened; CDFG California Special Concern Species

Distribution: From southern Los Angeles, Orange, western Riverside, and San Diego counties south into Baja California, Mexico.

Habitat(s): Primary habitat is coastal sage scrub, in all of its southern California forms, with maritime succulent scrub, chaparral, or riparian areas serving as secondary habitat types.

Status On Site: Prior to 1999, five gnatcatcher pairs were recorded within or adjacent to the Study Corridor. Territories were mapped for four pairs in the 1994 breeding season and five pairs in the non-breeding season. Details and information regarding the pre-1999 observations can be referenced in the 1999 Biotechnical Report. During the 2002 protocol surveys, a new location supporting one gnatcatcher pair was documented west of Old Otay Mesa Road.

Additionally, one pair and one individual were observed in the central section of Spring Canyon to the east of Caliente Avenue, with two other gnatcatcher pairs recorded to the west of Heritage Road, and another pair and one individual found in the canyon near the southern end of Heritage Road. Overall, the survey results indicated that a total of five gnatcatcher pairs and two individuals occupied the Study Corridor. Also, as part of the 2002 rare plant surveys, two coastal California gnatcatchers were incidentally sighted in Diegan coastal sage scrub within the Middle Segment of the Study Corridor. In the following year, two males and one unidentifiable individual were heard and observed south of Route 905 and approximately 365 meters (1,200 feet) west of Old Otay Mesa Road. On the same day, at least two other gnatcatchers were heard in an area east of the two, previously sighted males. Another pair was recorded in the Middle Segment on an east-facing slope in Spring Canyon. Also in 2003, a pair of gnatcatchers was incidentally observed west of the OCCS Preserve while conducting surveys for the Quino checkerspot butterfly.

Burrowing Owl (*Athene cunicularia*)

Listing: Burrow sites - USFWS Federal Special Concern Species; CDFG California Special Concern Species

Distribution: Lower British Columbia to Manitoba, Canada, and the central and western United States south to northern Mexico and Baja California, Mexico.

Habitat(s): Open areas within several, varying habitat types ranging from grasslands to shrublands; utilizes burrows of the California ground squirrel (*Spermophilus beecheyi*), prairie dog (*Cynomys* spp.), and other mammals for nest sites. In southern California, individuals have been observed excavating their own burrows on occasion.

Status On Site: Prior to 1999, up to three pairs were observed in and around Spring Canyon and a fourth pair was observed in the eastern portion of the Study Corridor. Burrowing owls were previously recorded (2000) near Caliente Avenue and south of the OCCS Preserve. A field visit to these specific sites on October 14, 2003 failed to find any recent sign of the species at either location. In 2002, four owls (a pair and young) were observed in the upland areas along the western arm of Spring Canyon, with a sighting of a single bird at the same location in 2003. During the fall of that year, an individual was documented in a fallow field northwest of La

Media and Airway roads within the Middle Segment of the Study Corridor.

California Horned Lark (*Eremophila alpestris actia*)

Listing: CDFG California Special Concern Species

Distribution: Coastal slopes and lowlands of California and northern Baja California, Mexico, occurring as far east as Jacumba in San Diego County and as far north as Sonoma County.

Habitat(s): Open habitats including disturbed, ruderal, grasslands, agricultural lands, bare ground, and sandy ocean or bay shores; often found on mesa tops.

Status On Site: Prior to 1999, horned larks were observed in many locations throughout the Study Corridor. A flock was recorded adjacent to pool 66 in the Middle Segment of the Study Corridor during the 2002 rare plant surveys. The species has continued to be incidentally observed throughout the Study Corridor over the past three years.

Cooper's Hawk (*Accipiter cooperii*)

Listing: Nesting – CDFG California Special Concern Species

Distribution: Continental United States excluding Alaska, parts of Montana, and parts of the Dakotas; with wintering south to Mexico and Honduras.

Habitat(s): In San Diego County, the species breeds in lowland riparian areas and oak woodlands in proximity to suitable foraging areas, such as scrublands or fields. Elsewhere it breeds in hardwood, conifer, and riparian forests, with nest sites characteristically enclosed by dense canopy cover. During the winter and migration periods, the species may be found in a variety of habitats, but seems to avoid open plains.

Status On Site: Prior to 1999, sightings of foraging individuals were recorded over the western arm of Spring Canyon. During the 2002 rare plant surveys, a Cooper's hawk was observed foraging within the portion of Spring Canyon nearest to Old Otay Mesa Road.

Loggerhead Shrike (*Lanius ludovicianus*)

Listing: Nesting – USFWS Federal Special Concern Species; CDFG California Special Concern Species

Distribution: Widespread, but declining, throughout North America, with wintering south to Central America.

Habitat(s): In general, open habitats with scattered trees and/or brush.

Status On Site: Prior to 1999, individuals were seen on most surveys, in various parts of the Study Corridor. The species continues to be incidentally observed as part of surveys in the Otay Mesa area, although the loggerhead shrike was not specifically documented during 2003 surveys.

Northern Harrier (*Circus cyaneus*)

Listing: Nesting – CDFG California Special Concern Species

Distribution: Widespread throughout the temperate regions of North America and Eurasia. The species winters and migrates throughout California from below sea level in Death Valley to an elevation of 2,987 meters (9,800 feet).

Habitat(s): Northern harriers, also known as "marsh hawks," frequent coastal, salt, and freshwater marshlands, grasslands, and prairies. The species tend to avoid mountainous areas and large, continuous forests.

Status On Site: Prior to 1999, several sightings of adults and sub-adults occurred during various surveys in/near the Study Corridor, mainly over Diegan coastal sage scrub and grasslands. A pair bred successfully in a tributary to Spring Canyon just west of Heritage Road, rearing one young. During the 2003 rare plant surveys, one bird was recorded foraging over Diegan coastal sage scrub, in the middle portion of Spring Canyon, on two separate occasions. Abundant hunting habitat appears to attract harriers to the Otay Mesa region from a wide area. The species

continues to be incidentally observed during surveys and, therefore, is known to still occur in the Study Corridor.

Orange-throated Whiptail (*Cnemidophorus hyperythrus beldingi*)

Listing: CDFG California Special Concern Species

Distribution: Ranges from southern Orange County and southern San Bernardino County (Colton), south to the cape of Baja California, Mexico. In the United States portion of its range, the lizard is restricted to the Pacific coastal slope.

Habitat(s): The whiptail generally inhabits sandy substrates in coastal sage scrub, chaparral, edges of riparian woodlands, and washes. The species can also be found in weedy, disturbed areas adjacent to these habitats. Important requirements for orange-throated whiptail populations include a mosaic of open, sunny areas and shade for thermoregulation, and an abundant invertebrate prey base, particularly termites, which are a primary food item.

Status On Site: Prior to 1999, several individuals were observed during the Route 905 surveys. Protocol surveys found that areas of whiptail activity were highest along the west side of OMR in a canyon with eucalyptus trees and in Spring Canyon (especially the upper reaches). Orange-throated whiptails were not seen in any of the intervening canyons or on the mesa tops. In 2002, new locations were documented north of Route 905 in the far western portion of the Study Corridor and in the eastern arm of Spring Canyon. During the 2002 rare plant surveys, orange-throated whiptails were observed at several locations in the Middle Segment of the Study Corridor. Two individuals were recorded in Diegan coastal sage scrub and one other individual was located in maritime succulent scrub. The following year, a total of five orange-throated whiptails were documented in similar habitat within the tributaries of Spring Canyon. The species has continued to be incidentally sighted throughout the Study Corridor during various surveys.

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

Listing: CDFG California Special Concern Species

Distribution: Ranges from southern Santa Barbara County south (on the coastal slope) to the vicinity of San Quintin, Baja California, Mexico. Localities on the eastern edge of the species' range include Jacumba and San Felipe Valley, both in San Diego County.

Habitat(s): The San Diego black-tailed jackrabbit occurs primarily in open habitats including coastal sage scrub, chaparral, grasslands, croplands, and open and disturbed areas provided there is adequate cover present. Livestock grazing, which reduces dense vegetative cover, can enhance jackrabbit habitat, and the species is often quite common in such areas.

Status On Site: Prior to 1999, jackrabbits were seen on a daily basis during the surveys. Primary concentrations appear to be in Spring Canyon and the adjoining habitat. The species was regularly observed in 2002 and 2003 during surveys for the Quino checkerspot butterfly, and also while conducting vegetation mapping and fairy shrimp surveys.

Bobcat (*Lynx rufus*)

Listing: USFWS None; CDFG None

Distribution: Found throughout North America from the southern part of Canada to southern Mexico.

Habitat(s): Bobcats occur in a wide variety of habitats including woodlands, grasslands, and shrublands from mountainous regions to the low deserts. The species is secretive and prefers areas with dense vegetation or abundant rocky outcrops that can be used for concealment.

Status On Site: An adult bobcat with one kitten was observed within the Study Corridor in 2002 during gnatcatcher surveys. No additional sightings have been reported, but the species still likely occurs within the project area.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

Listing: CDFG California Special Concern Species

Distribution: Occurs from Santa Barbara in Ventura County across to Los Angeles County, and southeast through Orange, Riverside, and San Diego counties to northwestern Baja California, Mexico. The upper elevation limit of the species appears to be 1,200 meters (4,000 feet) above sea level, but the species occurs infrequently above 450 meters (1,500 feet). Rufous-crowned sparrows tend to be found in localized areas where habitat is appropriate.

Habitat(s): Rufous-crowned sparrow habitat mainly consists of coastal sage scrub where it occurs on rocky hillsides and canyons, but the species also may be found in open sage scrub/grassy areas of successional growth (e.g., post-fire). The species typically inhabits areas that are rocky, open, and interspersed with patches of grass.

Status On Site: Prior to 1999, one individual was observed in the Study Corridor on three separate occasions in a small tributary of Spring Canyon. The species was not specifically recorded during recent surveys for the proposed Route 905, but has been documented as part of other field efforts in the area and, therefore, is known to still occur within the Study Corridor.

Western Spadefoot (*Spea hammondi*)

Listing: USFWS Federal Special Concern Species; CDFG California Special Concern Species

Distribution: Central Valley and surrounding foothills in central California and the San Francisco Bay area, south along the coast to northwestern Baja California, Mexico.

Habitat(s): The western spadefoot occurs on several different substrates, provided that correct ecological factors are present. In southern California, the species may be primarily found in coastal sage scrub, chaparral, and grasslands, but the most important component of spadefoot habitat is the presence of temporary pools which form during winter and spring rains. These pools are used for breeding and development of the young. Pools need to have some proximity to soils that are friable enough to allow burrowing by young spadefoots during the summer and fall dormant period.

Status On Site: Prior to 1999, toads were detected in three of the vernal pools. Spadefoots potentially occur in vernal pools, road pools, and other temporary pools within the Study Corridor, and have been identified in the OCCS Preserve. The species was not observed as part of the 2002/2003 fairy shrimp surveys, but was incidentally sighted in roadside pools during surveys conducted for the Quino checkerspot butterfly.

Yellow-breasted Chat (*Icteria virens*)

Listing: Nesting – CDFG California Special Concern Species

Distribution: Throughout North America; a spring and summer breeding resident in southern California.

Habitat(s): Riparian woodland and riparian scrub habitats.

Status On Site: Prior to 1999, a single individual was heard in the main tributary to Spring Canyon. The bird could have been part of an on-site breeding pair. The species was not observed during surveys for the Route 905, but may still occur in the Study Corridor.

Black-crowned Night Heron (*Nycticorax nycticorax*)

Listing: Breeding area – no formal status

Distribution: Breeds in North America and portions of central Canada and winters from the United States to South America.

Habitat(s): Marshes, swamps, ponds, lakes, lagoons, mangroves, and occasionally grasslands or rice fields.

Status On Site: Prior to 1999, migrating individuals were seen in a pond west of Heritage Road. The species could still occur, although it was not observed during recent surveys in the area.

Great Egret (*Ardea alba*)

Listing: Breeding area – CDF Sensitive

Distribution: Occurs in North America and Central America.

Habitat(s): Marshes, lakes, ponds, and shallow coastal habitats.

Status On Site: Prior to 1999, an individual was seen on two occasions in the pond west of Heritage Road. The species could still occur, although it was not observed during recent surveys in the area.

White-tailed Kite (*Elanus leucurus*)

Listing: Nesting – USFWS Federal Special Concern Species; CDFG Fully Protected

Distribution: Breeds in the Pacific states and winters to South America as far south as Chile.

Habitat(s): Typically nests in riparian or oak woodlands adjacent to grasslands, where the species hunts small mammals.

Status On Site: Prior to 1999, individuals were seen on most of the surveys throughout much of Spring Canyon and were observed breeding in the east end of the Study Corridor. One white-tailed kite was documented foraging over non-native grassland in the West Segment of the Study Corridor during 2002 rare plant surveys and another bird was incidentally observed north of Spring Canyon as part of additional field efforts.

Red-tailed Hawk (*Buteo jamaicensis*)

Listing: USFWS None; CDFG None

Distribution: Found throughout the United States.

Habitat(s): Grasslands, shrublands, and wooded areas. Nests in tall trees or occasionally man-made structures.

Status On Site: Prior to 1999, a nest was observed in the eucalyptus woodland along the western part of the Study Corridor and in a eucalyptus tree north of OMR. In 2002, red-tailed hawks were documented in and near Spring Canyon. Two individuals were also observed foraging over southern willow scrub in the canyon and west of Heritage Road during the 2002 rare plant surveys. The species continued to be incidentally observed during surveys in 2002 and 2003 within the Study Corridor .

The Federal Migratory Bird Treaty Act protects active nests from direct impacts, such as the removal of nest locations or indirect impacts, such as excessive noise. The red-tailed hawk, the most common raptor in the Study Corridor, is the species with the greatest potential to be affected by the proposed Route 905. Additional raptors that breed in the Study Corridor include, but are not limited to the burrowing owl, white-tailed kite, northern harrier, and great-horned owl.

The potential exists for at least 24 other sensitive animal species to occur in the Study Corridor, including two insects, seven reptiles, eight birds, and seven mammals. A full list of these species is provided in Appendix P, along with preferred habitats and estimated potential for occurrence on site. Many of the species are secretive or nocturnal and focused surveys would be needed to assess their presence/absence, but would not be warranted due to the low probability of occurrence or low level of species sensitivity. The impact analysis provided in this document is sufficient to address possible impacts to these species, in the context of their respective habitats.

Wildlife Corridors

The MSCP wildlife corridor connecting Spring and Denney canyons, and crossing the Route 905 project area, has high regional importance as it provides primary connectivity within western

Otay Mesa. Specific guidelines for the area state that enhancement/restoration of the crossing should be implemented as part of the MHPA effort. Both canyons are generally in a natural condition and they support a largely native habitat. Disturbance to them is more prevalent on the ridges and mesas. Otay Mesa Road bisects Spring and Dennery canyons, although it maintains a 1.8-meter (6-foot) diameter and 61-meter (200-foot) long culvert underneath the roadway. Vegetative restoration efforts along the north and south sides of the corridor have attempted to broaden and enhance the connectivity. Currently, the Otay Mesa corridor supports assemblages of both freshwater marsh and southern willow scrub, but activities immediately adjacent to the site infringe upon the drainage and contribute to a more degraded state.

During 1999, as part of a monitoring effort for habitat restoration within the corridor, wildlife activity was assessed at the completed Otay Mesa Road wildlife undercrossing. Observed signs of the following animals were documented at the culvert: desert cottontail, squirrels, opossum, grey fox, raccoon, various rodents, greater roadrunner, owl, and several insects. In 2002, sign transect surveys conducted at this location, for the MSCP, detected a similar species mix, as well as a mountain lion and bobcats. The area encompassing the proposed Route 905 wildlife undercrossing was found to accommodate small mammals, reptiles, amphibians, and medium-to large-sized mammals, the largest animal being a mountain lion. Most frequently, medium-sized mammal sign was observed within the study corridor, as well as that of several reptiles.

The Route 905 North and Central alignment alternatives were originally designed to incorporate an arch culvert at the crossing of Spring Canyon. In response to resource analysis, impact assessment, and public comments received on the DEIS/DEIR, the project plans were modified to accommodate two parallel bridge structures that will be centrally supported by columns set outside Waters of the United States. The westbound bridge would be 77 meters (253 feet) long, 19 meters (62 feet) wide, and 1.5 meters (5 feet) thick. The eastbound bridge would be 55 meters (180 feet) long, 19 meters (62 feet) wide, and 2.5 meters (8 feet) thick. The minimum clearance from the canyon bottom to the bridges would be 8.3 meters (27 feet).

The bridge design for the South Alignment Alternative has remained unchanged since the 1999 Biological Resources Technical Report. A single structure approximately 158 meters (518 feet) long, 67 meters (220 feet) wide, 1.5 to 2.5 meters (5 to 8 feet) thick, and 27 meters (89 feet) high would span Spring Canyon.

It is probable that bat species may utilize Spring Canyon as foraging habitat and potential roost sites. Three species (California State Species of Special Concern) may forage in the area: pallid bat (*Antrozous pallidus*), greater western mastiff bat (*Eumops perotis*), and Townsend's big-eared bat (*Plecotus townsendii*). Other bats, such as myotis (*Myotis* sp.) and Mexican free-tailed (*Tadarida brasiliensis*) could potentially roost in the area. Twenty-four American bat species are capable of using bridges as refugia or roost sites, including various species of myotis, Mexican free-tailed bat, and Townsend's big-eared bat.

3.9 CULTURAL RESOURCES

Initially, a broad study area for the cultural resource studies was established for this project rather than using a specific Area of Potential Effect (APE) because of the number of alignment alternatives being considered. The study area for architectural history included the area bordered by I-805, Enrico Fermi Drive, OMR, and Airway Road, except at the southeastern corner of the project, where the study area extended southward to include the proposed alignment alternatives between Airway Road and the POE. At the western end of the project, which includes existing

freeway portions of Route 905 and I-805, the study area was confined to existing Department-owned ROW. The study area for archaeology was defined as the proposed ROW limits for the various Route 905 Alignment Alternatives. The ultimate project APE for cultural resources includes both the historic architecture and archaeology study areas.

The body of current research of prehistoric occupation in San Diego County recognizes the existence of at least two major cultural traditions, referred to here as Early Period (Archaic) and Late Prehistoric, based upon general economic trends and material culture. Within San Diego County, the Archaic generally includes the period from 9000 to 1300 years ago, while the Late Prehistoric includes from 1300 years ago to historic contact. The Historic Period covers the time from Spanish contact to present.

In addition to the studies conducted specifically for the current undertaking, other studies have been completed within the APE for private and other public development projects under CEQA, NEPA, City of San Diego, and County of San Diego guidelines. As a result of these studies, the Otay Mesa area has been recorded as being covered with prehistoric cultural material (i.e., sparse lithic scatter) and numerous sites have been previously recorded in the study area and within a one-mile radius of the study area. Other types of sites recorded on Otay Mesa have included larger, more extensive quarry sites, campsites and villages. All relevant Route 905 cultural resource studies are contained in the following technical document (and its attachments) prepared for this undertaking: Historic Property Survey Report.

The previous studies have identified an extensive sparse surface lithic scatter across the mesa, which contributes little to the archaeological record because the data are repetitious and cannot be precisely dated to be placed in context. Based on this information, the State Historic Preservation Officer (SHPO), in a letter dated July 23, 1996, directed the Department and the City of San Diego not to test the sparse lithic scatter located within the APE. Instead, fieldwork was to concentrate on the campsites and/or village sites (there are no quarry sites) in the APE, and to prepare an overall management plan for the mesa. This plan was to synthesize previous work on the mesa, develop criteria for identifying the sparse lithic scatter and other site types, provide a discussion of data gaps, and define the future research orientation for the mesa.

A number of archival and field research studies were completed prior to the current environmental document. A literature review, record search, field surveys, and field investigations of the 957 Hectare (2,365-acre) Route 905 Study Corridor were completed between 1995 and 1997. Studies were conducted to evaluate any existing buildings or archaeological sites located within the project area for their potential eligibility to the National Register of Historic Places or the California Register of Historical Resources. At the direction of SHPO, the generalized sparse lithic scatter that covers Otay Mesa was identified as not eligible for the National or California registers and was not tested for this project. Additional sources consulted for information on cultural resources located within the study area, included: National Register of Historic Places (1979, 1989, and supplements since 1989); California Inventory of Historic Resources (1976); California Points of Historical Interest (1992, and supplemental information from the quarterly meetings of the State Historical Resources Commission); and California Historical Landmarks directory (1990, and supplemental information from the quarterly meetings of the State Historical Resources Commission). Information regarding previously recorded cultural resources located within the study area was obtained from the South Coastal Information Center at San Diego State University and from the files housed at the San Diego Museum of Man.

3.10 NOISE

Noise is commonly defined as unwanted sound. Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Since the human ear is not equally sensitive to all sound frequencies within the entire sound spectrum, noise levels are factored more heavily into sound characterizations in a process called “A-weighting” written as dB(A). In this document, all noise levels written as “dB” will be understood to be A-weighted levels, i.e., dB(A). The Federal Highway Administration (FHWA) and the Department use a peak one-hour noise measurement (that is the hour with the highest noise level). This noise level is described using a factor called the energy equivalent level (L_{eq}).

The Department uses the 1998 Traffic Noise Analysis Protocol (Protocol) to determine project impacts and abatement analysis during the environmental review process. The Protocol identifies the levels at which traffic noise causes an impact. For residential interiors and residential exteriors, these levels are 52 dBA $L_{eq}(h)$ and 67 dBA $L_{eq}(h)$, respectively. A noise impact occurs if levels approach within 1 dBA or exceed the applicable Noise Abatement Criteria (NAC); or if there is a substantial noise increase (12dBA or more) over the existing noise levels. The 67 dBA exterior criteria is evaluated during the single noisiest hour of the day.

Beyond the residential land uses, a survey of the Study Corridor by land use type identified many different existing uses including commercial, industrial, and manufacturing. Each of the non-residential areas were evaluated as to the nature and extent of outdoor activities. Table 3-7 lists the identified commercial, industrial, and manufacturing land uses and the presence of any outdoor activity areas.

Residential land uses are considered to be “sensitive,” as is Otay Mesa High School at the western end of the project corridor. A survey of existing residential receptors identified the following two sites within the Study Corridor:

- Site 1 One single-family dwelling immediately south of OMR between Old Otay Mesa and Heritage Roads and
- Site 2 Several single-family residences along Cactus Road in a mixed industrial, agricultural and residential use.

With respect to the school, the Santee Investments/Otay Mesa EIR was accepted by the City of San Diego but conditioned the approval based upon the provision of adequate noise abatement measures in anticipation of Route 905. Their environmental documents identify the need for and include appropriate noise abatement measures in the form of soundwalls. The Department's environmental engineering staff verified that the recommended noise barriers listed in environmental documents for the above developments will meet the Federal and the Department's Standards under NEPA and CEQA. According to Santee Investments/Otay Mesa's EIR, and addendum to Santee Investments/Otay Mesa Precise Plan's EIR, traffic noise from future Route 905 will have no impact on the proposed high school site.

Table 3-7
COMMERCIAL/INDUSTRIAL/MANUFACTURING LAND USES

Address	Company	Outdoor Activity
6930 Camino Maquiladora	4 Commercial / Manufacturing Buildings	No
6935 Camino Maquiladora	Commercial Center	No
6940 Camino Maquiladora	The Box Company	No
6955 Camino Maquiladora	7 Different Companies	No
6960 Camino Maquiladora	CalCam Computer & 4 other businesses	No
6965 Camino Maquiladora	Vacant	No
6975 Camino Maquiladora	Tread Co	No
1605 Pacific Rim Court	6 Commercial / Manufacturing Buildings	No
1657 Pacific Rim Court	NLI mfg	No
1663 Pacific Rim Court	J.E. Pacific Inc	No
1670 Cactus Road	Rivera Yarn	No
1690 Cactus Road	PAC Bell Tel Co	No
7043 Cactus Road	H Baza Farm	No
1703 Cactus Road	Cactus Recycling Center	No
7684 St. Andrews Cove	Coast Commercial/Warehouse	No
7557 St. Andrews Cove	Martin Furniture	No
7685 St. Andrews Cove	Biomedical Co	No
7603 St. Andrews Cove	AXSY Technologies & commercial buildings	No
7919 St. Andrews Cove	Graphite Design	No
1655 St. Andrews Cove	Industrial Automated Brokers, Inc	No
7510 to 7520 Airway Road	Airway Business Center	No
7878 Airway Road	Delimex	No
7880 Airway Road	Empire Center	No
7920 Airway Road	Empire Center	No
7850 Waterville Way	Innovative, Cold Storage Enterprises	Yes*
2055 Waterville Way	Honeywell	Yes*
2055 Dublin Drive	US Assemblies	Yes*
2055 Dublin Drive	Smith Corona Distribution Service	Yes*
7558 Panasonic Way	BCS Produce Company	No
7625 Panasonic Way	Panasonic/Matsushita Electric Corporation of America	No
7664 Panasonic Way	Parkers Seals Company	No
SW Corner of OMR & La Media Road	7-11 Convenience Store	No
1596 OMR	JD Electronic/Industrial Supply	No
1582 OMR	Richard's Van & Storage Inc	No
NE Corner of OMR & La Media Road	Fire Department	No
1422 Radar St	Nu Shoe	No
1625 Heritage Rd	AM/PM Convenient Store	No

*There are picnic tables outside the buildings are used intermittently and will not be considered an area of frequent human use, therefore, lowered noise level will not be of benefit.

Beyond the sensitive receptors mentioned above, no other sensitive land uses occur in the study area. However, schools and a conceptual park are planned in areas adjacent to, but not within, the study corridor. Nine noise monitoring locations adjacent to the proposed project's corridor were identified and selected for detailed study. The existing ambient noise environment consists primarily of noise from local automobile/truck traffic and air traffic from Brown Field.

Extended (24-hour) on-site noise measurements of ambient noise levels, according to the standards described above, were conducted at the nine monitoring sites. These noise monitoring locations are shown on Figure 3-12. Measured peak-hour noise levels were consistently in the mid-60 dBA range throughout the day and into the early evening and, in select areas, approach the FHWA NAC. Additional short-term (30-minute) monitoring was conducted at six locations during the morning and afternoon peak traffic. The results of the short term monitoring exhibited noise patterns similar to those observed in the 24-hour monitoring.

3.11 AIR QUALITY

Regulations

The federal Clean Air Act of 1970, amended (42 USC 7401 et seq), was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity.

In 1971, the EPA developed primary and secondary National Ambient Air Quality Standards (NAAQS). Six pollutants of primary concern were designated: carbon monoxide, ozone, suspended particulate matter, sulfur dioxide, nitrogen dioxide and lead. The primary NAAQS must "protect the public health with an adequate margin of safety" and the secondary standards must "protect the public welfare from known or anticipated adverse effects (aesthetics, crops, architecture, etc.)" (*Federal Clean Air Act* 1990). The primary standards were established, with a margin of safety, considering long-term exposures for the most sensitive groups in the general population. The EPA allows states the option to develop different (stricter) standards. California elected this option and adopted more stringent standards. Table 3-8 at the end of this chapter shows the Federal and State standards.

Progress has been made in the San Diego Air Basin in attaining federal and state air quality standards. Federal and state standards have been met for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide. Federal standards are being met for inhalable particulates labeled as PM-10 (particulates 10 microns or smaller in size). State standards for PM-10 have not been met and the possible addition of a PM-2.5 standard may change the air basin's federal status as it relates to inhalable particulates.

If an air basin is not in federal attainment (e.g. does not meet federal standards) for a particular pollutant, the basin is classified as marginal, moderate, serious, severe, or extreme non-attainment areas. Non-attainment areas must take steps towards attainment by a specific timeline. These steps include establishing a transportation control program and clean-fuel vehicle program, decreasing the emissions threshold for considering a new stationary source, a major source and increasing the stationary source emission offset ratio to at least 1.3:1 (*Federal Clean Air Act*, 1990). San Diego County is also no longer a serious nonattainment area for ozone (as was the case when the DEIS/DEIR was circulated publicly), having been redesignated an attainment/maintenance area (for 1-hour ozone) as of July 28, 2003. On April 15, 2004, San Diego County was designated as "Nonattainment" for the new Federal 8-hour ozone standard with a "Basic (Subpart 1)" classification. Conformity requirements associated with the 8-hour

ozone standard will likely become effective on June 15, 2005. The SDAB meets the standards for other pollutants, including carbon monoxide, which is a primary pollutant emitted from vehicles.

The California Clean Air Act required that air pollution control districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. All areas must meet California Ambient Air Quality Standards (CAAQS) by the earliest practical date, and at a minimum, air quality plans as a whole must meet an annual emission reduction target of five percent or apply all feasible control measures (County of San Diego, 1992).

The State Implementation Plan (SIP) is the document which sets forth the state's strategies for achieving air quality standards. The San Diego Air Pollution Control District (APCD) monitors air quality throughout the county, adopts rules, regulations, and programs to attain state and federal air quality standards, and appropriates money to achieve these objectives. The SIP portion applicable to the San Diego Air Basin is called the Regional Air Quality Strategies. During the SIP planning process, the SDAB determined that the federal ozone standard could be met by the year 1999, without the creation of any new control programs. This determination resulted in the EPA approval of a reclassification of the SDAB from severe to serious. All progress towards attainment, including offsetting the effects of growth, was expected to derive from existing local, state, and federal rules and regulations. Pollution transported from the Los Angeles region has prevented the San Diego region from having three consecutive clean years, the number required to have attained the standard by the 1999 date. Therefore, the projected attainment year of 1999 was not met. There were no exceedances of the federal one-hour ozone standard at any San Diego site in 2000. On February 7, 2001, the Air Resources Board applied to the EPA for a second one-year extension of the federal one-hour ozone standard attainment date for the San Diego non-attainment area. The first one-year extension was granted to November 15, 2000. San Diego could attain the standard and be eligible for redesignation to attainment if there are three or fewer exceedances in 2001.

Regional Air Quality

Air quality is commonly expressed as the number of days on which air pollution levels exceed state standards set by the California Air Resources Board (CARB) and federal standards set by the EPA. Of the nine monitoring stations maintained by the San Diego APCD and CARB, the nearest station to the project study area is at the Otay Mesa POE. Air quality as a particular location is a function of the type and amount of pollutants being emitted into the air locally, throughout the basin, and of the dispersal rates of pollutants within the region. The major factors affecting pollutant dispersion are wind speed and direction, inversion layers (which affect vertical dispersion), and the local topography.

Table 3-8
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³)	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	--	Ultraviolet Photometry	0.08 ppm (157 µg/m ³)	Same as Primary Standard	Ultraviolet Photometry
Respirable Particulate Matter (PM₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³	Gravimetric or Beta Attenuation	50 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
Fine Particulate Matter (PM_{2.5})	24 Hour	No Separate State Standard	No Separate State Standard	65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m ³)	Non-dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	None	Non-dispersive Infrared Photometry (NDIR)
Nitrogen Dioxide (NO₂)	Annual Arithmetic Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m ³)	Gas Phase Chemiluminescence	--	Same as Primary Standard	Gas Phase Chemiluminescence
Lead	30 days Average	1.5 µg/m ³	Atomic Absorption	--	--	--
	Calendar Quarter	--	Atomic Absorption	1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO₂)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	--	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m ³)	Ultraviolet Fluorescence	0.14 ppm (365 µg/m ³)	--	Spectrophotometry (Pararosaniline Method)
	3 Hour	--	Ultraviolet Fluorescence	--	0.5 ppm (1300 µg/m ³)	Spectrophotometry (Pararosaniline Method)
	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	--	--	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer	Extinction coefficient of 0.23 per kilometer	No Federal Standard	No Federal Standard	No Federal Standard
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography	No Federal Standard	No Federal Standard	No Federal Standard
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence	No Federal Standards	No Federal Standards	No Federal Standards
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m ³)	Gas Chromatography	No Federal Standards	No Federal Standards	No Federal Standards

Source: California Air Resources Board (1/9/03)

3.12 HAZARDOUS MATERIALS

General assessments and specific surveys were conducted for the evaluation of documented, suspected, and observed hazardous materials sites within the study corridor. A total of 57 known hazardous material sites were identified (please see Figures 4-17A and 4-17B). Operations having permits to generate or use hazardous materials and sites with undocumented refuse piles constitute 56 of the 57 identified sites and all represent minimal constraint to construction. Therefore, there is only one site that will impact all of the alignment alternatives. This is the

Tripp Landfill, an unpermitted hazardous waste site. Chapter 4, Section 4.12, provides detailed discussion of the potential impacts, agency coordination, and remediation efforts proposed for the Tripp Landfill.